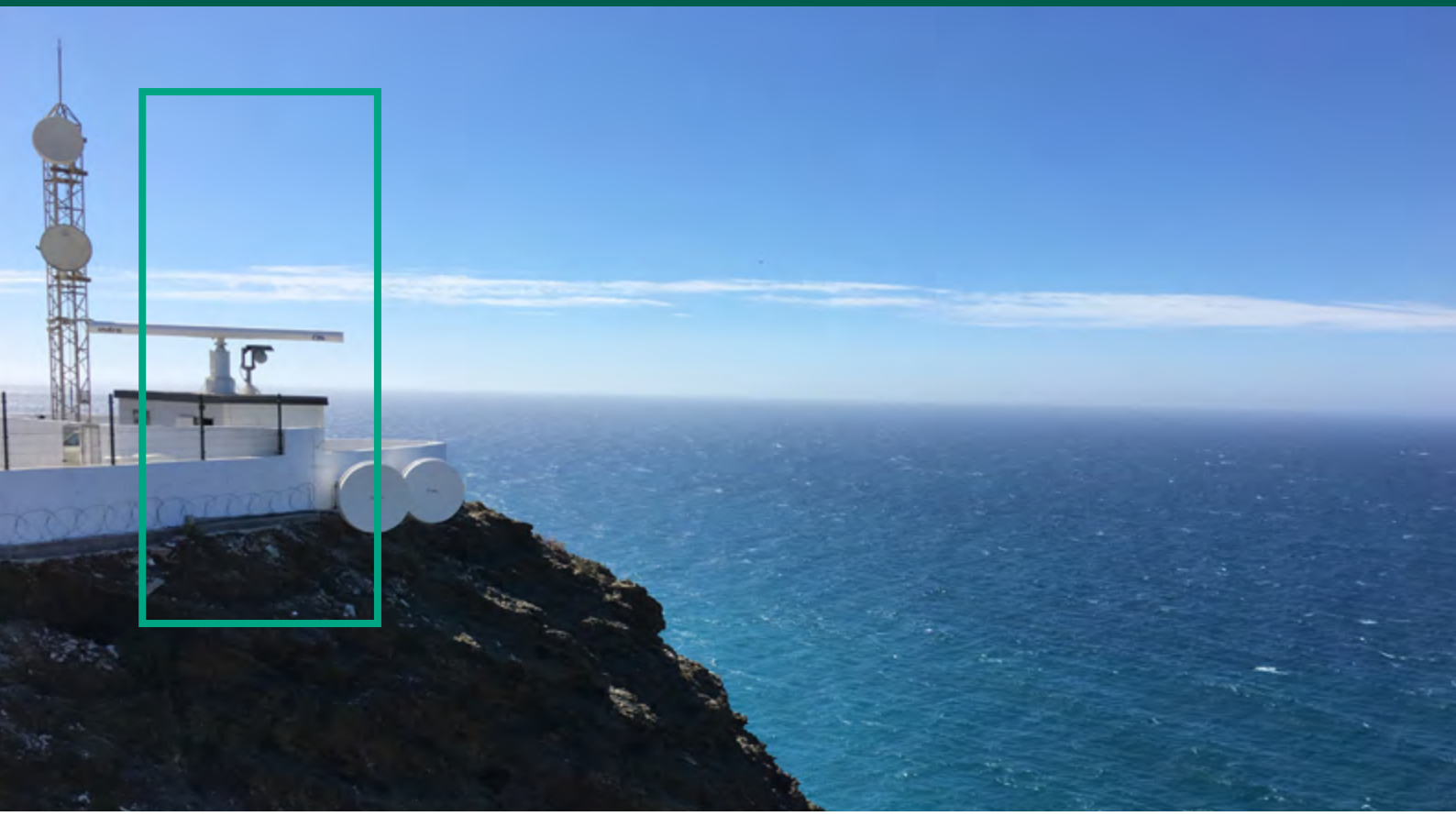


iMARE

Solutions for the implementation of Maritime Surveillance provide an integrated operational traffic scenario in real time

Integrated solutions

Indra's solutions for the implementation of Maritime Surveillance and Vessel Traffic Services provide an integrated operational traffic scenario in real time that enables the improvement of navigational safety, the efficiency in traffic planning, the water environmental protection and the security of port infrastructures. Our technological solution covers the integration of a wide variety of sensors, such as:

- Radars
- EOS (day/night)
- AIS
- RDF
- Radio Communications and voice integrator
- GMDSS
- Meteo/hydro stations
- Other sensors per customer request

Turnkey solutions: efficiency, functionality and scalability

Indra provides turnkey solutions from the initial consulting, integration (including existing systems), civil works, installation, commissioning and after sales support. Our solutions are based on consolidated field proven hardware and software elements with a modular and open architecture based on COTS hardware components and the use of open standards. It creates a system highly flexible on its functionality, scalable and easy for maintenance purpose.

Recognized member by the main Maritime Institutions

Indra's VTS solutions, as being our company an IALA industrial member, meet the recommendations from the IMO and IALA: basic, standard and advanced system configurations.

Main features

Improved situational picture (Situational Awareness)

iMare process and fuse sensor data from many different type of sensors, providing a consolidated and verified situational picture. iMare gather and disseminate processed information for safety, security, environmental protection and performance.

Multi centre capability

iMare combines a comprehensive design with flexible modular approach to scale its processing capabilities as necessary, and easily adapts to operational needs, from local operation to hierarchically connected operation centres.

Main Features (cont.)

Exchange large amount of data between equipment and services

iMare is designed to support large amount of data flow. A comprehensive wide-area traffic information leads to an increased volume of information being exchanged between ships and shore. iMare can provide data to external systems in different formats to better suite old systems or new integrations.

Decision Support Tools

Decision Support helps to assess situations that occur in the operating scenario, as an aid to make decisions, to avoid incidents and establish procedures for planning and management.
iMare supports numerous essential tools to support decision, such as: collision avoidance (CPA/TCPA), anchor watch, grounding avoidance, route planning, area and speed limits, etc. DST capabilities can be further extended with specific modules for anomaly detection, vdeo analytics and more.

Record and replay selected data

Recordings are essential for the purpose of incident investigation, for use as evidence following an accident or incident. iMare records and simultaneously replays all available sensor data.

Sensors integration and remote management

iMare has capability to integrate a wide range of sensors, including remote access and management of:

- Radio communications.
- Sensors (radar, AIS, environmental monitoring, electro-optical systems, radio direction finders, long range sensors).
- Data processing.
- Human/Machine Interface.
- External information exchange.

User centric Human/Machine Interface (HMI)

- 3D maps.
- Touch screen support.
- Voice control.
- Automatic alerts and warnings.
- Workspace fully configurable for each user.

Expandable functionality with additional Modules

- Planning.
- Reporting.
- Statistical tools.
- Pattern analysis.
- Predictive maintenance.

Simulator module

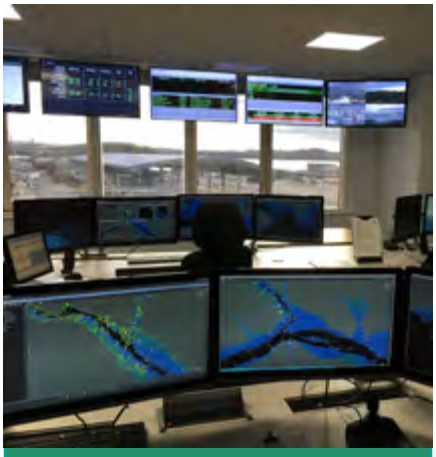
VTS training module is used for VTS operator trainings such as basic training (IALA V103-1), recurrent training (IALA V103-5) or debriefing and case studies. In case of need, iMare simulator workstations can also work as a redundant VTS Centre workstations.

Information exchange with external systems

IMare is capable of providing own information to third parties, as well as representing the external data on a new layer in the GUI, by implementing IVEF standard interface.

Port Management Systems

iMare integrates easily with the PMIS system to monitor the visits, handle the port resources and manage the incidents using a complete web platform fully integrated with the GIS application.



Sensor Integration: Cameras, Radio Direction Finders, Multisensor tracker, Hydro meteorological stations, Radar, AIS

Standards compliance

iMare implements the IALA recommendations for compliance with the international IALA Standards.

- IALA VTS Standard S-1040.

Support and service

Project team supervises complete project cycle, from design to implementation Help Desk and 24/7 support available remote monitoring and support issues between operators.

Main references

Indra provides VTS solutions based on our experience in several ports, among of which, the Port of Southampton is one of the busiest and most successful deep-water ports in the World.

In this project, iMare system is gathering all the information provided by the radar sensors (where Indra provides 4 new and integrates an existing one) and integrating it with the data provided by the Automatic Identification System (AIS), the Digital Selective Calling (DSC) mayday system, as well as the weather and hydro stations. It also access to various cameras that have been installed in order to visually verify the information provided by sensors.

Another main reference is the National VTMIS solution for the Polish Coast. Indra's VTMIS solution was chosen by the Polish Maritime Authority to manage the maritime traffic, safety and PMIS of three different areas (all the coast and 100km. of Oder river), with 4 coordination centres, one back up centre and up to 11 ports.

Besides the two references already described, Indra has deployed VTMIS solutions for different ports: along worldwide in Europe, South America, Africa and Asia.

All the said references share most of the technology with Coastal Surveillance Systems (CSS). In this field, Indra is a world reference after having integrated over 100 radars in more that 20 Command and Control Centres located in several countries: Hong Kong SAR CSS, Latvia CSS, Romania CSS (SCOMAR Project), Portugal CSS (SIVICC Project), Spain CSS (SIVE Project)...

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