LUCIAD
high performance visualization

Case Study

AGIS 4000
Lightweight maritime C2 application for onshore or mobile installation

Luciad provides Aeromaritime with COP by combining all messaging, both military and civil, and ECDIS data into one single dynamic map view using S-57 as well as S-63 charts

AGIS 4000 is the latest development in maritime C2 applications from Aeromaritime Systembau GmbH, a Germany based manufacturer, well-known for its military communications systems as well as IFF[1] systems for naval applications. The AGIS 4000 system enables commanders to get an accurate and up-to-the minute visual overview of all vessel activity. Aeromaritime employed LuciadMap™ technology to combine military position data sent via the Secure Aeromaritime Military Message System (SAMMS) as well as AIS messages and ECDIS data into one single dynamic map view using S-57 charts. The result is a robust multipurpose lightweight maritime C2 system that can be used virtually at any location. From fixed ground based control centers, to mobile units or onboard ships.

Founded in 1971, Aeromaritime Systembau GmbH develops and manufactures cost effective internal and external communication solutions for all tactical and administrative communications needs. The use of Aeromaritime's turn-key systems can be tailored to any size of naval vessel, from submarine to destroyer, and extends also to fixed or mobile ground communications stations and networks.

LuciadMap provides commanders with real-time maritime situational awareness

Their flagship, the APCOS 4000 hybrid routing and switching communications platform system, is successfully in use by many different navies across the world, including NATO.

Need for consolidated information on a single display

Seeing the complete and real-time picture of vessel activity is of vital importance in order to fully support modern Network Centric Warfare, both on naval ships and land based command centers (C4I). New generation communication systems must be capable of handling and routing a variety of data sources in order to save time, reduce mistakes and comply with the required reaction speed in a tactical scenario. While the existing Aeromaritime Communication and Message Handling systems have very powerful communications capabilities, they lacked the ability to display position data messages on a graphical electronic navigation chart. Hence the need for an application that could provide consolidated navigational information on a single display.

Port of Hamburg with some real situation tracking of civil vessels via AIS (Automatic Identification System). Tabel below shows additional information on each vessel

LuciadMap as foundation for the visualization interface

Based on previous positive experience with LuciadMap in the development of prototypes for naval and aviation applications, Aeromaritime once again turned to Luciad when starting the development of the AGIS 4000 system. Another reason why Aeromaritime opted for LuciadMap, as the basis for the visualization interface, was the open and standards-based programming structure. This made it possible to develop and integrate the solution within a short and predictable

[1] IFF= Identify Friend or Foe

timeframe. Adding extra functionalities is very easy through the use of software plug-ins. It enables Aeromaritime or third-party developers to create new functionalities without having to rewrite the source code.

Compatible with maritime and war fighting symbology

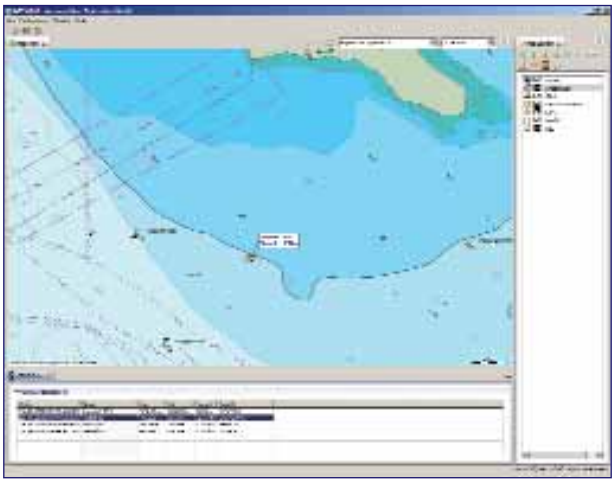
At the heart of the AGIS 4000 system runs LuciadMap's Electronic Chart Display and Information System (ECDIS) functionality. It provides all the necessary support for accessing a broad spectrum of nautical data. The ECDIS functionality is rigorously compatible with IHO S-57 ECD vector format and maritime and war fighting symbology defined by IHO S-52, MIL-STD 2525b and App-6A. Powerful symbology editing features for creating and editing both unit and tactical symbols, give operators the possibility to adapt the system to their proper needs. Vital information can be painted directly on the map, very useful for exercise or training purposes.

AIS information and tracks from civilian and military vessels

The AGIS 4000 system will be used primarily for message handling and vessel tracking. Military position data and AIS information are displayed in real-time on S-57 electronic navigational charts, providing commanders with an accurate picture of all vessel activity in a given area. Different users can access the system at the same time and, depending on the user level, different access rights can be set. The lightweight AGIS 4000 system can easily be installed in onshore stations, onboard naval ships via a GPS plug-in, or mounted in case units for mobile applications.

The introduction of the AGIS 4000 system is an important milestone in Aeromaritime's product offering. The powerful communication features of the current Aeromaritime Communication (APCOS 4000) and Message Handling Systems (SAMMS) , combined with the new AGIS 4000 strong visualization capabilities now allows commanders to get the complete Common Operational Picture. Many navies across the world will benefit from this cost-effective, yet powerful lightweight and transportable mapping and tracking system. By extending its offering to civil maritime markets, like harbor control centers and coast guards, Aeromaritime is also helping them in providing for a safer maritime environment.

AGIS 4000 can replay the complete AIS traffic for a specified period of time. The replay creates a new layer in the map view. The user can also choose the replay speed (real-time or multiplied by a factor)



Visual representation of an OTH-Gold position report which is sent through a MMHS (military message handling system) to AGIS 4000

ABOUT AEROMARITIME SYSTEMBAU

AEROMARITIME Systembau GmbH specializes in the design, development and manufacturing of military communications systems as well as IFF systems for naval applications. The latest technology is used to provide naval communications systems built to the customer's exact requirements. Their turn-key system capabilities extend also to fixed or mobile ground communications stations and total communications networks.

More info on **www.aeromaritime.de**