



KONGSBERG

# PROTEUS

Naval Training Technology



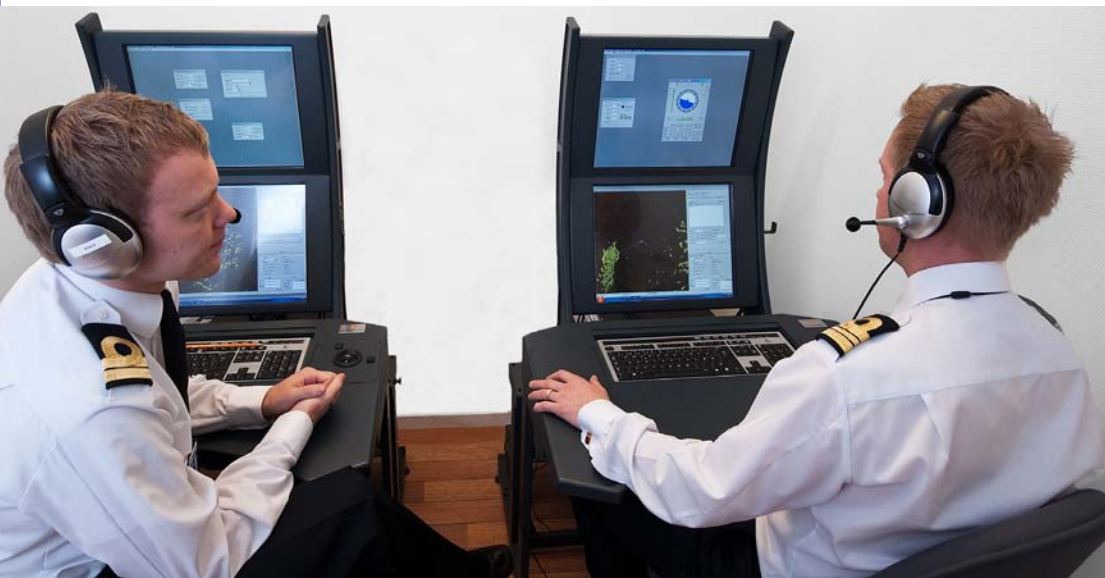
**Configured to your needs**

WORLD CLASS - through people, technology and dedication

# PROTEUS

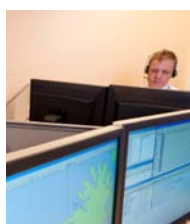
Naval Training Technology





# A product family for naval training

PROTEUS is a simulator technology that support a wide range of training needs, generic tactical, knowledge and skills training. PROTEUS is a flexible, configurable and expandable simulator technology.



**Generic Tactical Training** provides flexible facilities for the tactical decision making process for all levels of tactical decision makers and their teams. Generic tactical training supports:

- Basic tactical operational skills and communications procedures for all operators
- Sub Teams
- Full Team and higher echelon chain of command

## Knowledge Training

Integration of high fidelity parameterized simulation provides for a controlled and flexible training environment where the trainees, supported by the instructor, gain in-depth knowledge and understanding of the simulated real world systems e.g. radar, sonar, through insight in the simulation model and seeing the effect of changes immediately in the synthetic environment.

## Skills Training

An open and flexible architecture provides full support for realistic skills training of the operators either by emulating the system user interface or integration of real ship deployed software and hardware in to the simulator environment.



Bringing all the intensity, stress, situational awareness, multitasking and excitement of naval operations to the naval school.

## Action Speed Tactical Training

KONGSBERG's PROTEUS Action Speed Tactical Trainer (ASTT) provides flexible high fidelity naval tactical training.

This training system has been designed and continuously upgraded to maintain our state-of-the-art ASTT solution.

The purpose of the ASTT is to train the naval command teams in the tactical decision making process. Crew coordination and mission hand-off procedures are critical in this process and are effectively trained using PROTEUS.

The standard configuration of the ASTT contains instructor stations as well as the generic training cubicles for surface, submarine, aircraft and helicopter positions including the related sensors, combat management systems and weapon simulation. The PC-based

workstation cubicles can be configured as required by the customer instructor to meet the customer's training requirements and to achieve the desired training throughput.

The system is scalable. The full functionality can be executed on a stand-alone laptop, in standard training cubicles, or in a WAN environment using HLA to link the system to other third-party trainers or simulators.

The system enables multiple levels of training from basic procedural operational skills up to CIC team coordination and communications as part of operational naval warfare operations.

Naval warfare operations can be trained using customer created exercises focusing upon:

- Anti-Submarine Warfare
- Anti-Air warfare
- Anti-Surface Warfare
- Electronic Warfare
- Mine Countermeasures

Multiple exercises, such as those listed above, can be executed simultaneously on the trainer. The system also provides the procedural, tactical and operational training for sonar, radar and communications operations. Full instructor functionality including that required for replaying, debriefing and evaluating each exercise provided is within the core of the ASTT. There is full access to modify and create new entities within the simulations, e.g. ships, weapons and sensors.



Full CIC Cubicle



Combined Trainer



Action Speed Tactical Trainer



Gain in-depth knowledge and understanding of the simulated real world systems

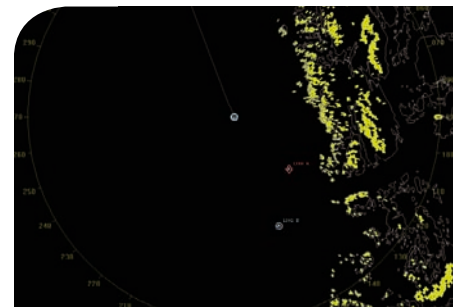
# Knowledge training

Integration of high fidelity parameterized simulation provides for a controlled and flexible training environment where the trainees, supported by the instructor, gain in-depth knowledge and understanding of the simulated real world systems, e.g. radar, sonar, through insight in the simulation model and by seeing the effect of changes immediately in the synthetic environment.

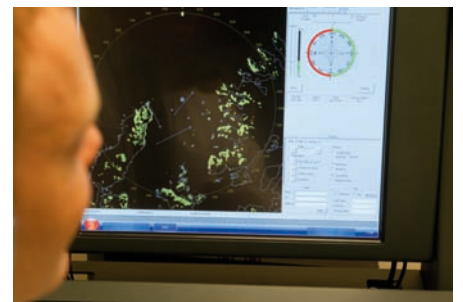
High Fidelity simulation algorithms enable the students to fully understand the theory behind sensor and weapon system capabilities and behavior.

All simulation algorithms are parameterized enabling the students to test and understand the effect of the various sensor and weapon system characteristics.

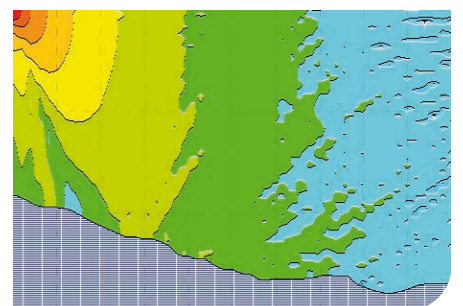
Using the this approach, we have integrated third party applications into both the instructor and student facilities, such as the Norwegian Defence Research Establishment's Sonar performance and propagation prediction package LYBIN. Providing an integrated toolset for in-depth analysis, the student will get an understanding of real world hydro acoustics in a simulated and synthetic environment.



Parameterized Radar Simulation



Generic CIC tacticalplot



Plug-in third party Sonar propagation tool



Stimulation of the real warfare systems

## Realistic skills training

An open and flexible architecture provides full support for realistic skills training of the operators, either by emulating the systems user interface or by integration of real ship deployed software and hardware in to the simulator environment.

Skills training are supported by providing realistic user interfaces and response for the students, and give full control of the surrounding environment for the instructor, tailor-made to meet the required learning objectives.

In our portfolio we have a number of software emulation of operational sensor and weapon systems, as well as several real software and hardware integrations of combat management, sensor and weapons systems.



Emulating Operational Software



Integration of Operational Software



Interfacing Operational Hardware



# Center of excellence within simulation & training

Training is the key element for any skill-based tasks. Educational research concludes that people learn better by experience than through reading or lectures. It is impossible to replace live experience gained in real operations with simulated training, but simulators can in a cost effective way increase skills to be ready for mission faster.

Training also has an important role in maintaining skills on the achieved level. Another important factor of training is that it allows the soldiers to prepare for scenarios where the automatic reaction is crucial. With the possibility to customize scenarios for specific missions, soldiers can practice in similar situations to those faced in combat operations.

KONGSBERG has been a supplier of simulators and trainers in the

international market for the last three decades. The company has accumulated a unique experience across the complete spectrum of training systems, ranging from small simulators to complex military team trainers.

The KONGSBERG trainers are based on an in-depth understanding of the learning process. Sophisticated pedagogic methods are used to support the instructors, thus ensuring

maximum focus on achieving the training objects.

KONGSBERG has a wide range of world class products within naval and land systems:

- Basic Skills Trainer
- Crew Trainer
- Tactical Trainer
- eLearning/CBT
- Scalable classrooms
- Stimulated solutions
- Embedded training

[www.kongsberg.com](http://www.kongsberg.com)

WORLD CLASS - through people, technology and dedication

**Kongsberg Defence & Aerospace**  
P.O.Box 1003 N-3601 Kongsberg Norway  
Phone +47 32 28 82 00 Fax +47 32 28 86 00  
E-mail [kda.simulation@kongsberg.com](mailto:kda.simulation@kongsberg.com)