

TRANSAS NAVIGATIONAL SIMULATORS



TRANSAS



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Navigational simulator Navi-Trainer Professional 5000 (NTPRO 5000) enables simulator training and certification of watch officers, chief officers, captains and pilots on all types of vessels.

Training to STCW 2010



ECDIS



ARPA/Radar



Bridge Team Management



Crew Resource management

...and beyond



Ice Navigation



DP and Offshore



Tug Handling



Search and Rescue



Pilot Training



Port Study, R&D



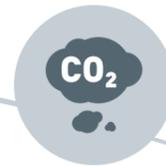
Naval Applications



Incident Investigation



Onboard Nav. Equipment



Emission monitoring and fuel consumption



High Speed Craft



Fishing Operations



Anchor Handling



VTS



Anti-piracy

COMPLIANCE WITH INTERNATIONAL STANDARDS AND REGULATIONS

- International Convention of Training, Certification and Watch keeping for Seafarers (STCW2010).
- IMO model courses.
- International SOLAS Conventions.
- Approved by DNV (with class notation INTEGRATED SIMULATOR SYSTEM, NAUT AW (SIM), DYNPOS – AUT (SIM), HSC, TUG, ICE to the Class A Standard for Certification of Maritime Simulators No. 2.14 October 2007).
- Regulations concerning "special" training: fishing operations, VTS operator training etc.



TRAINING GOALS DEFINE SIMULATOR CONFIGURATION

Computer based training

- Individual in-house or distance learning.
- Equipment familiarization.
- Refresher training.
- Self-examination and competence assessment.
- Onboard training and assessment.



Georgian College, Canada

Networked classes

- Interactive group exercises under instructor supervision.

Full mission simulator

- Final training and certification.
- Bridge resource management.

Interlinked Navigational and Engine Room simulators

- Crew resource management: "Whole ship" evolution training; exercising communications between the bridge and engineering departments.



US Merchant Marine Academy



California Maritime Academy, USA



MITAGS, USA

ECDIS TRAINING

With mandatory introduction of ECDIS for SOLAS vessels, ECDIS operation training becomes definitely necessary.

Transas ECDIS Simulator is based on the Transas Navi-Sailor ECDIS Multifunction Display MFD 4000 with inbuilt Navi-Planner voyage planning software, both fully compliant with the latest performance standards for shipborne navigation equipment. It incorporates Chart Delivery Server Emulator for charts delivery, charts updates and licenses updates in automatic mode which is a critical issue during ECDIS training. Among other new options are fictitious area database, new training chart folios and weather forecast.

Transas ECDIS systems can be supplied in various configurations, from the computer programs suitable for shipboard training to the full mission simulators with real ship controls. Configurations may vary to suit individual or group simulator training and the needs for monitoring from the instructor station.

The simulator ensures the efficient training, fully compliant with the IMO and STCW requirements.



Måløy vidaregåande skule, Norway

RADAR/ARPA TRAINING

Navigational simulators in any configuration allow training in modern radar and ARPA operation skills. For this purpose, both computer imitators and actual radar displays connected to the simulator can be used.

Transas can create radar scenes of any water area in the world at the customer's request.

The radar picture generation algorithm considers:

- the geometry of objects, their relative position;
- the reflection capability of materials;
- 3D wave;
- antenna three-dimensional motion;
- earth curvature.

A wide range of realistic effects is simulated: shaded areas, loss of targets in heavy sea, radar picture change depending on ship's rolling and pitching, echo-signals of different range depending on geometry and reflection capability of a shore line.

Real ARPA/radar units and keyboard can be incorporated.



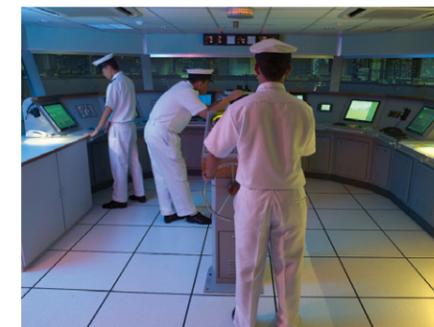
Pacific Maritime Institute, USA

BRIDGE TEAM MANAGEMENT TRAINING

Weakness in bridge organisation and management has been cited as a major cause for marine casualties worldwide. Frequently, accidents in operations are caused by resource management errors. Bridge team management reduces the risk of marine casualties by helping a ship's bridge crew anticipate and correctly respond to their ship's changing situation. The simulator is designed to ensure this kind of training in compliance with international standards.

By the end of the course the trainees will be able to:

- Form bridge teams, making full use of all the competencies available and ensure that all members of the team are aware of their duties and responsibilities.
- Draft detailed passage plans and monitor the vessel's progress to maintain the plan.
- Recognise the threat potential of a situation and make decisions which maintain the safety of the vessel.
- Support and monitor a pilot.
- Recognise the need to make contingency plans in areas of high risk.
- Recognise the development of an error chain, and effectively break such a chain.
- Interpret and make efficient use of a ship's manoeuvring data.



ALAM, Malaysia

CREW RESOURCE MANAGEMENT TRAINING

To provide means for the "whole ship" evolution training and exercising communications between the bridge and engineering departments, Transas has developed a Total Ship concept.

"The immediate thing that appealed to me in the selection of a Transas simulator was the integration between the bridge and machinery control room. The integration is very important. The communication between the bridge and machinery control room, the coordination in the situation when something goes wrong is something we would like to train in the Royal New Zealand Navy. We always train for the worst and hope for the best".

Desmond Tiller

Lieutenant Commander, the Technical Training Officer for the Royal New Zealand Navy



MESTE, Royal New Zealand Navy

TUG HANDLING

Fully integrated Transas tug simulator supports:

- offshore tugging and towing;
- ship assist work;
- high speed escort work;
- operating various anchor equipment;
- oil rig and platform moves;
- integrated tug master and pilot training.

Practically all types of tugboats are simulated, including conventional single-screw tugs, conventional twin-screw tugs, cycloid-drive (Voith-Schneider) tractor tugs and Z-drive reverse tractor drive.



VTS OPERATOR TRAINING

Transas VTS simulators comply and exceed relevant requirements stated in IALA recommendation V-103 on Standards for Training and Certification of VTS Personnel.

The simulator equipment and software imitate all the main VTS functions and allow instructor create areas with different navigational situations, control target ships and generate various training scenarios and tasks.

VTS simulators fully correspond to the functional capabilities of actual Transas VTS systems operating in dozens of ports worldwide.

VTS simulator can operate in a common environment with navigational and GMDSS simulators.



AMC Search, Australia

ECOLOGICAL SIMULATOR: FUEL AND EMISSION MONITORING

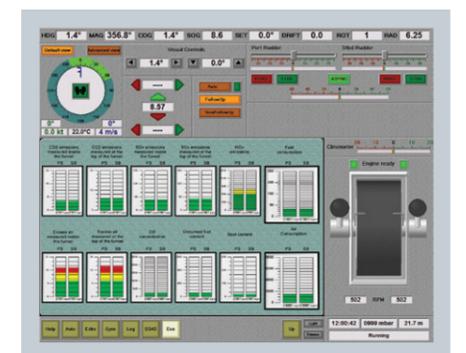
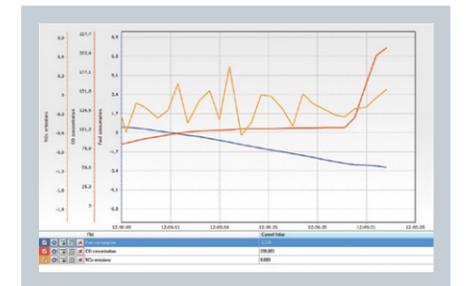
Transas has developed a new simulator for monitoring fuel consumption and emissions in cooperation with its customer Rörvik Safety Center (Norway). The simulator meets the new MARPOL Convention amendments concerning air pollution from ships.

It is an educational and realistic way to show correlation between different types of vessels handling and discharge of emissions to air.

Through the simulator training navigators will get an idea how to reduce emissions of pollutants and greenhouse gases and lower fuel consumption and costs through the planned execution.

The most important features of the ecological simulator:

- simulate various types of vessels (ferries, speed boats, etc.);
- measure the speed and time spent;
- measure the fuel consumption in real time, total and average;
- measure the emissions of NOx, SOx, CO2 and HC;
- store the simulations for the debrief of the course participants.



MITAGS, USA



ASD Tug simulator
in cooperation with Seaways Europe



Pacific Maritime Institute, USA

PILOT TRAINING

The simulator provides facilities for combined training with tugboat masters and VTS operators and ensures:

- realistic ship maneuvering in heavy weather conditions, shallow water, narrow channels and in a lock;
- specialist training tasks including docking/undocking with or without mooring lines and tugs, anchoring;
- extensive database of simulated ship models and controls to work with.

OFFSHORE OPERATIONS AND USING DP SYSTEM

Transas offshore simulator, compliant with NI and DNV requirements, is designed for training of teams involved in transferring and supply of anchored mobile offshore units.

The system is intended for education of:

- MOU personnel (oil installation manager, MOU DP master, anchor winch operator, offshore crane operator);
- AHT personnel (AH winch operator, DP master/navigator).

Dynamic positioning system training

The simulator enables:

- holding position and course, manoeuvring in various sea and weather conditions, anchor handling;
- oil spill response and rescue operations training;
- incorporation of customer-defined exercise areas and customer's ship controls.

Oil rig crane operations

The simulator provides oil rig crane operator training. The following operations can be practiced:

- transfer/receive PCP;
- transfer/receive cargo.

Modelling of anchor handling operations

Transas Offshore Simulator features a detailed model of deck equipment, an accurate model of anchor handling operations, interactive control of anchor handling operations and flexibility in building scenarios for various anchor-handling methods.

The system faithfully simulates interaction of all objects involved in the process.



CSA, Brazil



Måløy vidaregåande skule, Norway



Pan-Arab E-Navigation, Egypt



ICE NAVIGATION

The ice navigation module developed jointly with the Arctic and Antarctic Research Institute allows training in the crew procedures used when:

- mooring to Single Point Mooring (SPM);
- proceeding in broken ice, along the solid ice edge, bumping against the edge, in open pack ice, in ice holes and in patches of ice-free water;
- following the icebreaker (training in watch service procedures for maintaining the place in the convoy, maintaining communication between the ship, icebreaker and other ships in convoy);
- using radar information while sailing in ice conditions;
- using the ice chart in the ECDIS.

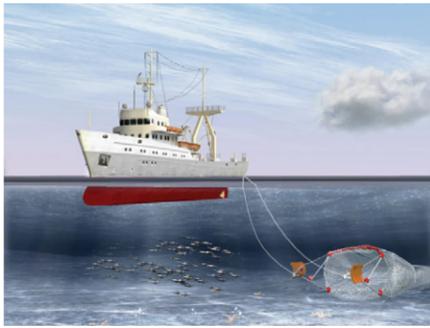
The accurate modelling of the ship-ice interaction (such as hydrodynamic interaction with the ice surface, specially within the ice field; hull friction with the edge of the ice field, and bumping into the ice field), high quality visualisation of various ice surface types, nocturnal conditions, visibility effects and reflections, ensure the maximum realism and training efficiency.



SEARCH AND RESCUE

Transas simulators enable the full scope of training in search and rescue operations as per the IAMSAR manual.

Modelled modern types of rescue boats, helicopters, facilities for the search and rescue at sea, combined with communications modelling, allow training in the use of these facilities and in the coordination of the search and rescue operations in the most adverse weather conditions. The synchronous recording and playback of the event, the use of equipment and exchange on the air are the most effective means for collective training in the rescue of human life at sea.



FISHING OPERATIONS

The fishing simulator is intended for training the cadets of fishing academies and courses in basic fishing processes, including vessel manoeuvring and handling the acoustic devices. It also supports refresher training of experienced crews before forthcoming voyages and knowledge assessment of deck officers, trawl masters and deck crews for obtaining appropriate licenses.

A highly realistic model of the trawl system, an advanced model of fish behaviour under influence of vessel, trawl and environmental conditions, modern acoustic fish finding and trawl controlling devices all allow the creation of exercises and training in different aspects of fishing operations.



NAVAL APPLICATIONS

Transas navigational simulators have a number of naval applications, which allow training of combat system operators or entire team in:

- fleet formation management;
- underway replenishment;
- lifeboat operations;
- deck helicopter operations;
- weapon application scenarios.



German Naval Academy

RESEARCH WORKS FOR SHIP MODELLING, HARBOUR AND FAIRWAYS DESIGN

With the increasing accuracy of the models and acceptance of them by navigators for preparing for new traffic patterns and operations, the maritime simulators have taken on a new role in R&D applications as an effective port/waterways design tool.

NTPRO simulator R&D suite includes 3D database editing tool Model Wizard, ship hydrodynamic model development package Virtual Ship Yard and a 3D current analysis and forecasting software Cardinal.

The simulator can be used for various projects such as port design and planning; study of ship operation in the restricted water conditions and mooring operations including tug operation; ship design and incident navigation.

MODEL WIZARD 3D DATABASE EDITING TOOL

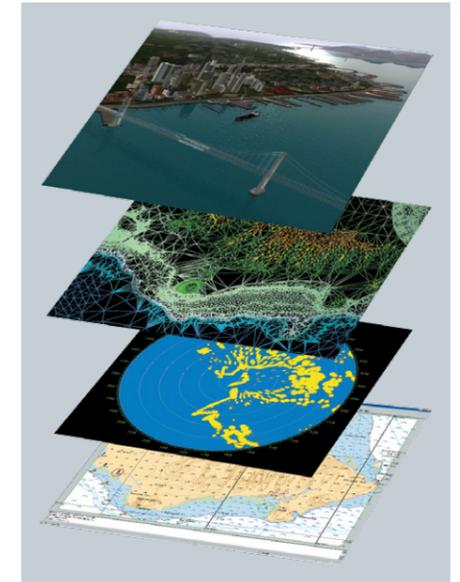
Model Wizard is a powerful tool intended for the production and updating of integrated databases giving possibility to create simulation areas for any region of the world and automatically generate the optimum presentation logic.

Model Wizard develops the following data sets:

- the set of vector electronic charts;
- terrain and depths database;
- radar database;
- visual database;
- models of water flows distribution.

VIRTUAL SHIP YARD

The Virtual Ship Yard software is used for ship model development and uses a modular principal, which enables easy modification or replacement of any module if required. The software supports two modes of the development: simplified for quick modeling and more accurate modeling based on the latest technical instruments for simulation professional use.





MATHEMATIC MODELLING

The NTPRO 5000 simulates integration of ship/channel hydrodynamic effects and operational procedures so that simulators can be used not only for traditional maritime training but for number of R&D applications as an effective port /channel /terminal design tool.

- Realistic soft grounding simulation
- Lock effect
- Modelling of ship squat in restricted channels
- Modelling of bank and channel effects
- Effect of mud layers
- Parametric effect of waves on ship stability



SAILING AREA LIBRARY

Impressive library of simulated areas in Transas collection includes 294 areas and counting. The existing areas cover practically all the important shipping areas, straits and ports of call, as well as extensive sections of inland waterways. New areas can be developed based on customer's requirements.

SHIP MODEL LIBRARY

Transas models are internationally recognized for top quality and application flexibility. The library comprises accurate realistic mathematical models (more than 320) of a wide selection of ships including open ocean navigation, confined waters navigation, berthing/mooring operation, tug and ship assist operations and specialized vessels.

Mathematical models of ships and ship equipment, physical forces and effects have been based on the results of research carried out by the leading research centres of Russia, and comply with the highest possible global standards.



These models have been developed specially for Bourbon Offshore

VIZUALIZATION

Leading the way in visualisation, Transas offers a brand-new highly realistic visualisation system.

Visual presentation of a new wave includes three dimensional bow waves and associated floating object interference, reflection of the entire scene, water translucency and light refraction, white caps, foam and splashes.

NTPRO 5000 is the world first simulator presenting dynamic shading calculations of all exercise and scene objects.

Icing effect which is mandatory for ice navigation in accordance with the DNV standard influences both visual and motion model behaviour.

Visualisation tuning and adjustment module integrated into the simulator provides geometry correction, soft edge blending, uniformity adjustment and colour matching.



INSTRUCTOR WORKPLACE

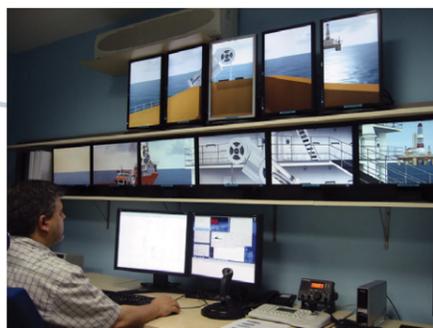
The role of instructors in simulator training cannot be overestimated. The instructor station incorporated in Transas simulators provides the instructor with all the necessary tools for the efficient generation, editing, managing and assessing of training exercises.

Capabilities:

- High accuracy data presentation on the basis of vector charts (able to automatically load all the charts referring to the selected gaming area).
- Multi-lingual user interface (English, Russian, Japanese).
- Creation of exercises and automatic competency assessment scenarios.
- Control of simulator session(s).
- Continuous automatic recording of data in the course of the exercise (main, audio and video log files).
- Real, slow and fast time modes.
- Able to display a track in the form of a succession of contours (Track mode) and to set the track prediction mode (Trend mode) for all the exercise objects (Global settings) and for one object (Local settings).
- Weather conditions manager.

Evaluation and Assessment System

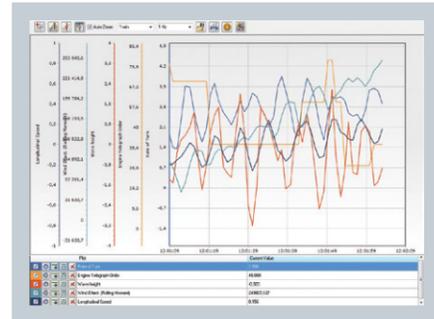
The Transas Evaluation and Assessment System allows objective assessment of an exercise fulfilled by a trainee. The system enables automated online assessment with a capability to correct any assessment rule at any moment of time. Prompt information about errors and advice in a form pre-programmed by the instructor is provided to trainees.



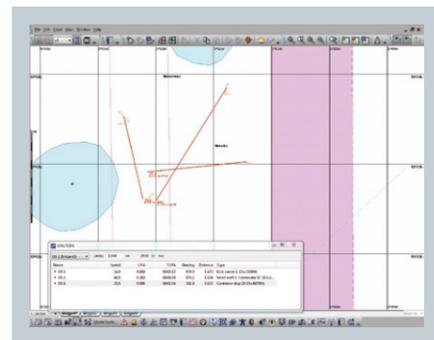
German Naval Academy



Additional information on the Instructor selective visualization



Graphic presentation of ship motion parameters



CPA/TCPA

HARDWARE CONTROLS

- Indispensable for "hands-on" full mission shiphandling and Bridge Team exercises.
- Transas, customer's or third-party equipment.
- On-screen controls replicating or simulating real ship control equipment.



Interschalt AG, Germany. Integrated bridge systems supplied by Sperry, Raytheon and Transas are simulated



Transas universal hardware solutions



LONG TERM PARTNERSHIP WITH THE CUSTOMERS

Transas has always believed strongly in mutually beneficial partnerships and long term close relationships with our customers, with the goal of providing a solid benefit to the marine industry.

With extensive field experience and significant number of installations, and in collaboration with our friends and partners at training institutions across the globe, Transas has developed a comprehensive, flexible and customisable product maintenance and development program called "TRANSERV".

TRANSERV – Transas Standard of Services

- Applicable to any Transas Simulation system independently of age and size.
- Allows the customer to predict and manage more effectively the maintenance and system development budget.
- Programme is flexible and customized according to the customer requirements.
- Maintains the value of the customer's investments into the Transas system by keeping all system components up to date with the national and international regulations and modern technologies.
- Guarantees the minimum downtime of the system with low-cost maintenance budget by using the extensive network of certified service partners and modern technologies.



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