Marine operations – such as transportation, installation and lifting of fixed and floating structures and subsea equipment – are becoming increasingly challenging as operators move to harsher climates and deeper waters. Sesam for marine systems is a groundbreaking software solution that keeps pace with the increasing complexity of marine operations through 3D simulation and visualization.

Sesam lets you visually simulate, test and evaluate marine operations ahead of offshore handling. Sesam provides the ability to visualize the operation in 3D and run multiple ‘what-if’ scenarios showing the results of all known parameters, including dynamic positioning. It reduces risk significantly for transportation, installation and lifting of fixed and floating structures, and installation of subsea equipment.

The simulations in Sesam for marine systems can be used during real-time execution of marine operations, including installation of SURF structures such as templates, flexible risers, umbilicals and pipelines. The coupled and multi-body analysis is performed in time domain, and is based on 3rd-order Runge-Kutta and Newmark-β methods among others.

With Sesam for marine systems you can:
- Manage risk of marine operations
- Perform ‘what-if’ analyses
- Improve HSE performance
- Benefit from cross-disciplinary communication
- Evaluate feasibility
- Gain better understanding of main challenges
- Prepare for actual operation through familiarization
- Support decision-making during actual operation
- Understand through visualization
**View operations in real time**

Sesam benefits are crucial for successful completion of offshore installations. With Sesam it is possible to view the simulated operations in real time, answering such questions as:

- At what speed is it feasible to perform the operations?
- How quickly can a loaded crane rotate in various weather conditions?
- How should the crane be positioned for most stable procedures?
- Is the operation feasible only up to a certain wave height?

Seeing the operation through realistic computer simulation offers unequalled decision support. Technicians will see ahead of time how the components will react to the applied forces, what motion will be incurred, for example swing movements of equipment or the heeling force on a vessel or offshore structure. When the actual marine operations begin, the coincidence of having seen the simulation will support operators in making the right decisions.

**What is included in Sesam for marine systems?**

- **Modelling**
  - Graphical user interface
- **Analysis**
  - Time domain
  - Interactivity
- **Result presentation**
  - Integrated post-processor
  - 3D visualization

**Sesam for marine systems can be used for:**

- Lifting of topsides and modules
- Lifting and installation of SURF structures (templates, pipelines, flexible risers)
- Floatover installation/removal of topsides
- Load-out from quay to barge
- Offloading (tankers in tandem or side-by-side)
- Offshore crane operations
- Jacket lift installation and removal
- Transportation of offshore floaters (e.g. TLP, Semi, Spar)
- Up-ending of SPAR
- Towing by tugs (e.g. GBS)

Sesam for marine systems includes the modules Sima, Simo and Rilex. Sima is the graphical front end for running Simo and Rilex simulations of marine operations.