vortex studio

Maritime Environment

Simulation and Visualisation with Vortex Studio

overview /

Vortex Studio simplifies the creation of maritime scenarios. It simulates the interaction of floating and submerged bodies, such as sea vessels, amphibious vehicles and underwater robots, with bodies of water, and renders engaging maritime environments.

benefits /

Vortex Studio reduces the effort required to create immersive ocean-based scenarios for operator training and virtual prototyping. It simulates contacts and interactions between equipment and water in real time based on user- defined equipment properties, such as buoyancy and lift, as well as environment parameters.

KEY FEATURES /

1. Accurate simulation of rigid body interactions with fluids, including buoyancy, drag and more

2. Immersive surface and underwater visuals with advanced particle effects, surface reflections and wind streaks

3. Fully customizable environment, including sea and wind scales, underwater currents, cloud cover type and density, and more

4. Complete integration with Vortex Studio cable and vehicle simulation

**Simulate Complete Marine Scenarios.**
Vortex Studio allows you to build complex offshore scenarios containing ship-based cranes, amphibious vehicles and underwater robots, enabling full mission simulation.

Immersive Marine Environments.
Vortex Studio allows you create rich surface and subsea environments and replicate underwater visibility, surface reflections, ocean spray and more, creating an engaging user experience.

Integrated Simulation Toolset.
Vortex Studio Studio goes beyond maritime environment simulation and visualisation, providing a complete platform for land and sea applications. With fully-integrated cable simulation capabilities, it allows you to create port- and ship-based lifting equipment, ROVs, and more.
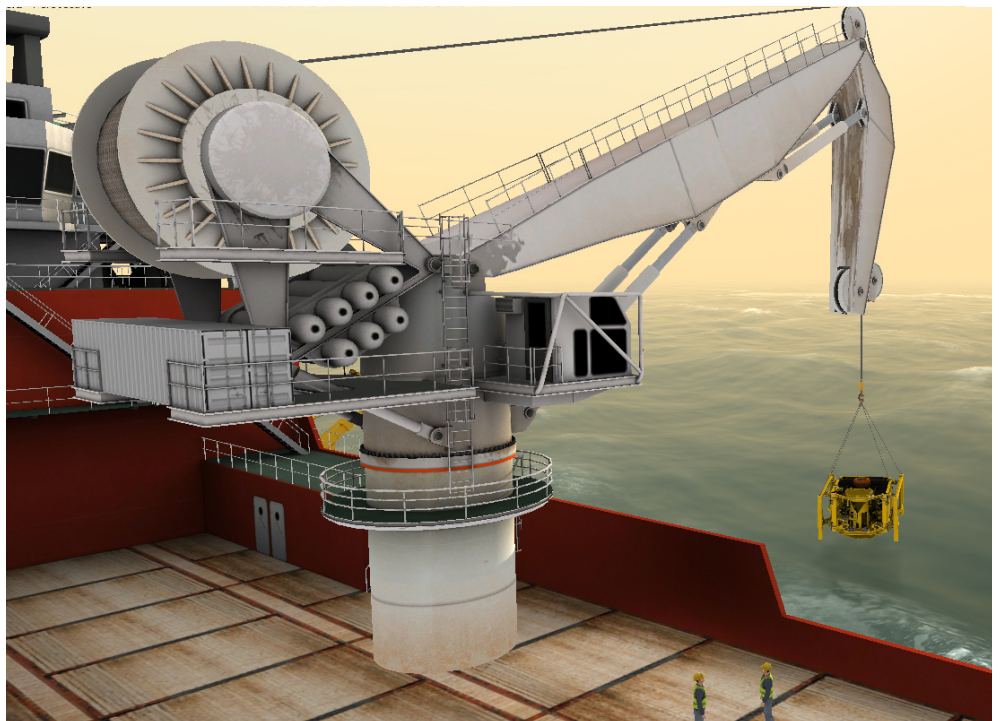
Key Features

1
Accurate Rigid-Body Hydrodynamics

From realistic ship heave and sway based on configurable sea state to the effect of currents and drag on underwater ROVs, Vortex Studio enables accurate simulation of offshore equipment and environments.

- Simulate buoyancy, drag, lift and added mass on rigid bodies

- Define sea scale manually or using Beaufort and Douglas scale

- Create realistic waves using wind fetches and swells

- Model equipment thrusters by applying directional force based on propeller RPM

2
Advanced Marine Visual

Vortex Studio simplifies the creation of immersive topside and undersea scenarios with built-in reflections and particle-based visual effects for ship wakes, spray and underwater fog.

- Realistic object, environment and light reflections on ocean surface

- Dynamic texturing on water surface enable special effects, such as impacts, liquid spills and wind streaks

- Particle spray on bow wakes and breaking waves

- Reproduce deep sea visibility with floating silt particles and underwater fog

3
Topside and Subsea Scenarios

Vortex Studio allows you to simulate surface and undersea scenarios for operator training, mission rehearsal and more, and makes it possible to recreate a wide range of offshore equipment.

- Ship- and port-based crane operations, such as equipment retrieval and deployment

- Amphibious assault vehicle driver training

- Underwater ROV operator training and accessibility study

- Anchor handling and docking operations rehearsal

Image courtesy of MARIN