

Vortex Studio Visualisation Engine

Integrated multi-channel game-quality 3D visuals
for ground and maritime simulation

overview /

Vortex® Studio's built-in visualisation system allows you to render simulations using rich graphics right out of the box. With full integration to Vortex Studio's dynamics engine, support for 3D and CAD content pipelines and desktop tools to manage models and graphics materials, it provides all the tools you need to craft engaging simulations of ground vehicles, mechatronic systems and maritime equipment.

With its distributed rendering architecture, Vortex Studio's visualisation engine lets you deploy simulations on any hardware platform, from desktop environments to multi-channel simulators with integrated 3D audio and motion cueing systems.

benefits /

High visual fidelity and reliable performance are key to user immersion, but integrating third-party visualisation systems can be complex, and slow down project delivery. Vortex Studio delivers game-like visuals and high performance with a content pipeline and architecture tailored for the needs of simulation integrators.

KEY FEATURES /

1. Realistic visualisation of environments and objects
2. Distributed rendering architecture designed for synchronised multi-channel playback
3. Out-of-the-box visual effects for maritime environments, earthmoving equipment and cable simulation
4. Complete content pipeline for 3D artists and scene designers
5. Extensive optimisation toolset ensures consistently smooth performance

Rich Graphics. Create simulations with game-quality 3D visuals and engaging visual effects, and easily deploy them on any Microsoft® Windows-powered hardware platform with Vortex Studio's visualisation engine.

High Performance. Vortex Studio's visualisation engine has been built specifically for real-time simulation, providing a high performance solution that delivers stable 60Hz rendering.

Fully Integrated. Vortex Studio's dynamics and visualisation engines eliminate the need to integrate disparate technologies, and provides out-of-the-box visualisation for ground and maritime environments, cables and even soil in motion.



Key Features

Rich Virtual Environments

Vortex Studio's visualisation engine lets you render a variety of simulated environments, from urban scenes with a multitude of light sources, to marine scenarios with water surface reflections and waves.

- Dynamic lighting based on time-of-day, light sources and surface reflections
- Efficient real-time shadows with cascading shadow maps
- Realistic maritime environment rendering, with surface reflections, waves, wakes and underwater visibility
- Customisable authentic weather effects, including time of day, rain, snow, fog, 3D clouds and more
- Vibrant graphics materials and textures that react to light from the environment

Engaging Visual Effects

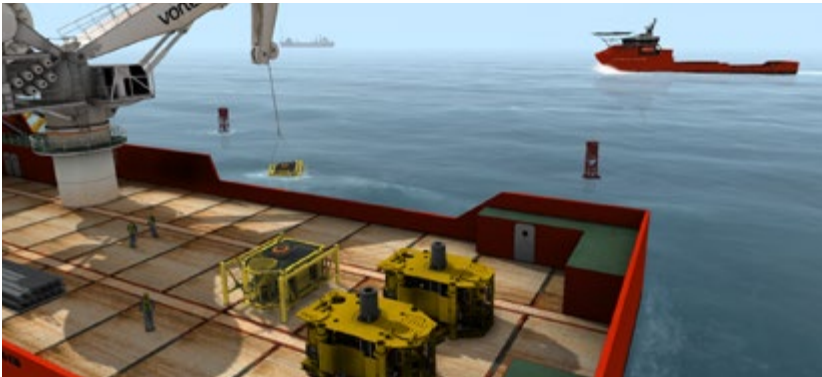
With a broad range of effects for land- and sea-based equipment, Vortex Studio's visualisation engine brings your simulations to life and makes it easy to fully immerse users.

- Dynamically-generated particle-based effects, such as dust, smoke, splashes
- Built-in maritime effects including rotor wash, ship wake and spray, and underwater silt
- Complete visualisation of soil excavation, compaction, erosion and dumping effects
- Sky reflections on metallic objects
- Customizable level of detail for distance optimization
- Support for flat & convex mirror of any shape

From Creation to Simulation

Vortex Studio provides a complete content pipeline for 3D artists and scene designers. It provides the tools and assets they need to create optimised 3D assets and create virtual environments.

- Desktop editor to import and optimize 3D models and textures
- Library of interactive character models
- Support for custom SpeedTree® models with included library of vegetation assets
- Seamlessly render graphics materials and environments created in the Vortex Studio Editor
- Render materials using albedo, normal, diffuse, specular, emissive and gloss channels



Built for Simulation

Vortex Studio's visualisation engine is designed to deliver smooth visuals at 60Hz on a wide range of of Microsoft® Windows-powered hardware configurations, and offers users an extensive optimisation toolset to achieve this objective.

- Distributed rendering architecture enables full visuals synchronisation across multi-channel display systems
- Visualise models and environments using modern image rendering techniques and GPU-optimised shaders
- Reduce drawcalls with automatic entities and textures instancing
- Leverage efficient anti-aliasing methods to provide smooth graphics with minimal impact on performance
- Support for screen-space ambient occlusion