![vortex studio]

Vehicle Simulation

with Vortex Studio

overview /

Vortex Studio enables the creation of realistic tracked and wheeled vehicles. With the ability to model individual vehicle components, such as engine, transmission and brakes using mechanical specifications, Vortex Studio accurately simulates ground vehicle behavior in real-time.

benefits /

Whether your simulation is used for operator training or new design validation, an accurate replication of a vehicle's performance on different types of terrain is instrumental to delivering the right results. Vortex Studio provides a complete toolset to model your vehicle's powertrain, driveline and operating environment to high levels of details.

KEY FEATURES /

1. Accurate vehicle performance based on engineering design parameters

2. Realistic wheel-ground interactions based on terrain type with soft- and hard-ground tire models[1]

3. Authentic fault simulation through component-based powertrain and driveline simulation

4. Library of vehicle templates including standard car, truck, military vehicles and heavy equipment

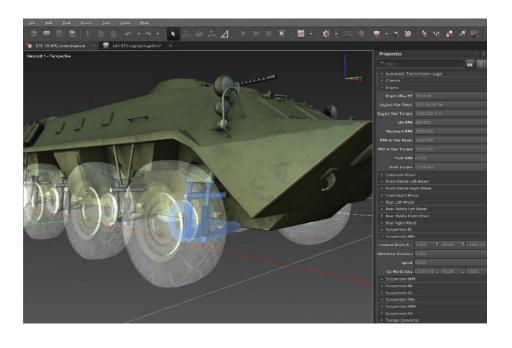5. Open architecture enables integration of external PLCs and control systems

Authentic Vehicle Performance.
Vortex Studio uses an engineering-based approach to vehicle simulation to ensure virtual models behave as closely to their real-world counterparts as possible.

Realistic Vehicle-Terrain Interactions.
Vortex Studio simulates accurate interactions between vehicles and environment, such as terrain, water and obstacles, recreating a wide range of movements, from skidding and fishtailing to rollover.

Off-the-Shelf Creation Tools.
The Editor, Vortex Studio's creation and editing application, simplifies the creation of vehicle simulations with templates that automatically populates model components.

[1]Only available for Vortex Studio Solo, Team and Academic editions

Key Features

1

Accurately Simulate Vehicle Performance

Vortex Studio simulates individual powertrain components, allowing emergent behavior based on vehicle properties and providing a highly-realistic virtual experience.

- Build vehicles with combustion engine or electric drives

- Model manual, automatic and hydrostatic transmissions.

- Control mechanical properties, such as engine, torque converter, transmission and differential

- Select Ackermann, Pivot or Crab steering methods

- Create vehicles with articulated chassis and vehicle attachments, such as engineering blades and winches

2

Replicate Behaviour in Any Environment

Vortex Studio simulates realistic interactions between your vehicle and the virtual environment in which it operates, providing an authentic driving experience.

- Simulate individual wheel suspension using abstracted models, or model moving parts

- Define traction based on terrain type, such as dry or wet pavement, mud or snow

- Select from multiple hard- and soft-ground tire models, including Magic Formula, Composite Slip, Fiala and Soft Terrain[1]

- Simulate tracked vehicles with rigid and flexible[1] tracks

- Accurately simulate skidding, fishtailing and rollover

3

Create a Wide Range of Scenarios

Vortex Studio provides a unified simulation and visualisation platform, allowing you to create simulations ranging from single-seat driver trainers to complex, multi-participants missions.

- Own-ship training, from basic operations to convoy drills with multiple drivers

- Logistics and engineering scenarios, such as vehicle recovery, site preparation and counter-mobility exercises

- Virtual prototyping of ground vehicles and heavy equipment

- Mission rehearsal and operational planning

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