

## **CMLabs Launches Feature-filled Vortex 4.1 for High-Fidelity and Physics-based Vehicles, Robotics and Training Simulations**

*Optimized for OpenSceneGraph, Vortex 4.1 delivers major workflow, dynamics, and constraint enhancements for real-time visual simulation applications.*

**December 1, 2008, Montreal, Canada** – CMLabs, the global innovator of real-time, physics-based simulations, announced today the release of Vortex 4.1, an enhanced version of its robust software toolkit for fully interactive virtual environments and accurate dynamic motion and mechanical behaviour. Designed for software developers and system integrators to produce engineering-grade simulations, Vortex leads the industry in simulating wheeled and tracked vehicles, machines, robots and more for real-world operator training, mission rehearsal, virtual prototyping and testing. CMLabs will showcase Vortex at the Interservice/Industry Training, Simulation and Education Conference (I/ITSEC) in Orlando, FL from December 1–4 at Booth 3327.

Vortex 4.1 provides the visual simulation market with significant new features and time-saving enhancements. Building on major Vortex 4 module extensions, the latest version offers developers an XML-based file format to simplify how they define, save and reload a Vortex universe, while saving the simulation state. Vortex 4.1 includes and fully supports OpenSceneGraph (OSG) 2.6.1, leveraging the open-source 3D scenegraph for Vortex simulations. New Vortex enhancements provide up to 50% faster assembly construction during simulation, and a wide variety of new and improved Vortex properties and physics behaviour equip users with substantial functionality to create, extend and fine-tune real-time simulations.

“The launch of Vortex 4.1 signifies a major step for Vortex and the Vortex simulation community,” said Arnold Free, VP Business Development at CMLabs. “As well as providing developers with key new technology, workflow-enhancing tools, and important physics updates, it is a substantial building-block on the way to our 2009 rollout of a desktop Vortex mechanism editor. Through our commitment to cutting-edge R&D and high-performance software, the feature-rich Vortex continues to set the visual simulation standard for usability, accurate behaviour and state-of-the-art realism.”

### **Vortex 4.1 Features and Benefits**

- **Major workflow enhancements:** On the path to the desktop Vortex mechanism editor coming in 2009, Vortex 4.1 rolls out the VxPersistence module, an XML-based file format and toolkit to define a complete Vortex universe, permitting developers to capture, save and reload all Vortex properties and simulation states.
- **Tight integration with OpenSceneGraph (OSG) 2.6.1:** Vortex 4.1 ships with OSG 2.6.1, and provides full support for the latest OSG feature set, as well as supporting OSG 2.2 and later versions.
- **Important performance improvements:** Faster assembly construction during simulation in Vortex 4.1 greatly enhances interactive simulation performance with improvements of up to 50% faster.
- **Optimal precollision feedback:** A new query tool provides users with robust object-distance checking that determines the closest distance between the surfaces of two geometries. This aids in the development of control systems and mechanisms that can now respond to very precise object-distance data.
- **Constant-velocity (CV) joint for multiple applications:** The new VxHomokinetic constraint implements a CV joint for the simulation of vehicle drivetrains and robotics applications.
- **Optimized dynamics in hinge constraints:** The updated VxHinge constraint provides additional robustness in mechanisms involving hinges under high loads such as robotic manipulators.

- **Faster terrain-object collision detection:** The expanded VxTerrain feature improves performance of object-terrain collision detection and contact generation. This enhances simulations by ensuring constant frame rates even when terrain complexity varies locally.
- **Multiple improvements:** Vortex 4.1 also comprises numerous earlier updates since Vortex 4.0, such as significant speed improvements when modifying collision behaviour at runtime. The VxVehicles module now supports the creation of two-sided track components for tracked robot applications, and the Vortex user documentation has been updated.

### **Vortex 4.1 Availability**

The Beta release of Vortex 4.1 will be available in December 2008, and the Final release in Q1/2009.

### **Sample Vortex Implementations**



*Vortex in action simulating a subsea ROV, a log-forwarder, and an M1 Tank.*

### **About CMLabs**

CMLabs provides industry-leading physics-based behaviour modeling solutions and services to companies and institutions throughout the real-time visual-simulation world. With a long history in the visual-simulation and gaming industries, the Vortex team produces feature-rich simulation tools that set the industry standard for interactive 3D dynamics and simulating mechanical equipment behaviour. Vortex expertise and technology put high-fidelity behaviour in motion in applications for training simulators, mission rehearsal, serious games, virtual prototyping and testing. Vortex customers include Honda, John Deere, L-3, Lockheed Martin, NASA, Carnegie Mellon University, and over 100 other leading companies and academic institutions.

For more information, please visit CMLabs at [www.cm-labs.com](http://www.cm-labs.com) or contact [info@cm-labs.com](mailto:info@cm-labs.com).