Havok Cloth™
Style & Realism Demands Havok Cloth

CREATE ULTRA-BELIEVABLE CLOTH SIMULATION

Havok Cloth is a performance-optimized development tool for creating believable simulation of cloth, hair, foliage and other soft body objects.

Middle-earth: Shadow of Mordor Uses Havok Cloth
Image courtesy of Warner Bros. Interactive Entertainment

An Artist Solution for the Next Generation.

Havok Cloth is easily customizable and fits into today's workflow to maximize the productivity of artists, animators and programmers. Havok Cloth also features out-of-the-box integration with Havok Physics and Havok Animation. As with all Havok products, Havok Cloth is built to deliver optimal performance on the latest hardware, with full support for leading game platforms.

// Havok Cloth powered titles across platforms, generations and genres.

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// ARTIST-DRIVEN CONTROL OF CLOTH BEHAVIORS
For easy control of cloth properties such as stretching, damping, bending, and resistance to air.

- With Havok Cloth, you can easily control cloth's ability to stretch and bend, its mass and its resistance to air.
- Runtime support for slow-motion effects, variable frame-rates and high frequency collision detection allow for the use of Havok's runtime cloth in cinematic cut-sequences and in-game set pieces.

// HIGH-PERFORMANCE SIMULATION
Multithreaded and platform-optimized for fast and efficient cloth simulation.

- Havok Cloth is a fully multithreaded application, optimized for each supported platform to maximize game performance. It includes built-in support for instantiation of cloth items, with a minimal memory footprint on each instance.
- When appropriate, you can simulate only a portion of a cloth object while the rest is skinned to the character, with smooth transitions between the two.
- Havok Cloth features level of detail to make sure your game's main characters and items closest to the camera look the best. Havok Cloth also allows for decoupling of simulation and display representation, so you can apply cloth simulation to arbitrary meshes, such as thick cloth.

// LANDSCAPE COLLISION DETECTION
Highly optimized, memory efficient and robust solution to collide cloth with arbitrary triangle meshes.

- Havok Cloth features full landscape collision detection support for triangle/mesh landscapes. Havok Physics can be integrated with Havok Cloth to efficiently handle broad phase and mid phase collision detection.

// MODELER-BASED SET-UP TOOLS
To allow artists to quickly and easily animate believable behaviors of character garments and environmental cloth.

- Havok Cloth supports standard polygon modeling tools, enabling you to work in the environments most familiar to you.
- Additional artist tools provided as modeler plug-ins allow you to flag meshes as Havok Cloth objects, create collision-detection primitives and associate them with a garment, and specify cloth-specific properties using vertex color painting for per-vertex properties.

> *Bungie games have always been about robust, complex simulations creating exciting new gameplay experiences. Destiny's living world could not have been realized without Havok's Physics, Cloth, and Script technology.*

Justin Truman
Senior Programmer, Destiny

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