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MotionSolve for Trucks and Busses

Analyze and Optimize Truck System Performance

MotionSolve – Altair's multi-body solution is an integrated solution to analyze and improve mechanical system performance. In the truck and bus industries, MotionSolve is used to assess system durability, evaluate and improve new suspension systems, optimize the ride and handling characteristics of vehicles, evaluate and optimize subsystem performance and validate mechatronics components.

Solution Highlights

- Easily build realistic models with the assembly wizard and a library of parametric subsystems & components
- Through simulation assess vehicle attributes such as durability, vehicle dynamics and NVH
- Minimize component mass safely by providing accurate loads to component optimization efforts
- Execute simulations to generate performance targets for key vehicle subsystems
- Perform multi-disciplinary analyses with controls, 1D, CFD and hydraulics to assess new concepts in vehicle design
- Improve system performance through design studies and design exploration

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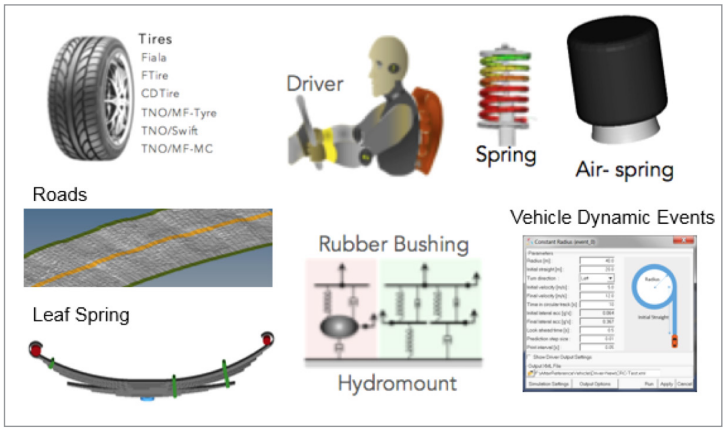
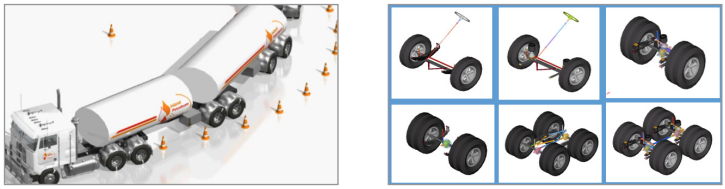
Model

Build your trucks from a user-extensible, library that includes:

- Parametric suspension, steering and powertrain system models
- Leaf springs, air springs, coil springs, dampers, linear, non-linear and frequency dependent bushings, hydro-mounts, and bump and rebound stops
- Tire and road models of varying fidelities for durability, NVH, handling and ride evaluations
- Utilities to easily create:
  - Leaf springs
  - Road graphics and driver paths from common road description files like OpenCRG



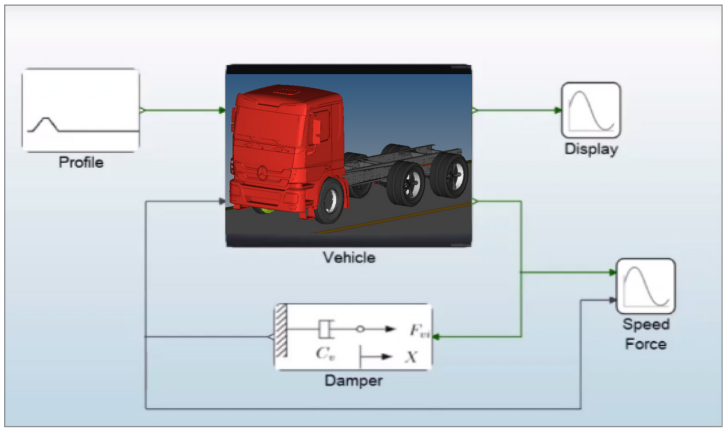
MotionSolve contains a wide variety of automotive-specific modeling elements that simplify model creation and promote data reuse



You can quickly build complex models, define driving events, run simulations and look at results

Analyze

- Sophisticated driver models for driving trucks
- Simple graphical interfaces to execute standard industry events
- Run user-defined maneuvers
- Co-simulate to solve multi-physics problems
- Exchange models using FMI/FMU 2.0
- Export linearized models



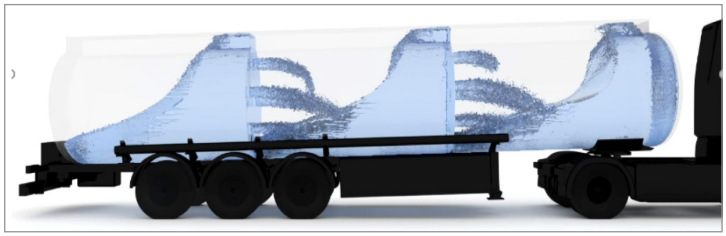
MotionSolve is often used to evaluate mechatronic systems that are modeled in sT/Activate, Matlab or Simulink®. You can connect your controllers to a high-fidelity MotionSolve model and perform co-simulation to evaluate how well it performs.

Evaluate

- Output time histories of displacement, velocity, acceleration, force and user-defined results
- Automated report templates to examine plots and animations and understand product behavior
- Assess requirements compliance with automatically generated reports

Improve

- Evaluate design robustness with seamless link to HyperStudy
- Optimize system performance



MotionSolve allows you run multi-physics analysis with flexible tires, hydraulics components, Flex-bodies, controls and CFD.

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