



Realtime Technologies, Inc. Product Component Overview

Modeling Software

- **SimCreator:** RTI's SimCreator provides the core software of the vehicle simulator. Windows-based Graphical Modeling environment, with standard library of components for basic mathematical operations and signals. Allows building and running models on a host and remote computer. Also supports exporting models to C/C++ code and libraries for use in external code. *Single-node license. Requires Microsoft Visual Studio 2003.*
- **SimCreator Linux Server:** Runtime license and libraries for running SimCreator based models on Linux OS computers such as Concurrent's iHawk Realtime systems. *Single-node license. Requires RHEL 3.0 or RedHawk 2.2.*
- **SimCreator Powertrain Component Library:** Powertrain Library is a collection of drive train components made to augment the standard component library of over 90 control system and graphical components that ship with RTI's Simcreator. Powertrain offers you everything you need to develop complex multi-axle powertrains. *Building license. Requires SimCreator version 1.5 or higher.*
- **SimCreator Multibody Dynamics Library:** Multibody Dynamics Library is a collection of components made to augment the Standard Library that ship with Realtime Technologies' SimCreator software package. It includes base bodies, joints, masses and cut joints. The joints included in this collection are prismatic, revolute, cylindrical, universal, screw and spherical. You can use cut spherical joints to model closed loop systems. You can also model complete tree systems using merges, masses and offsets. This library supports fixed and 6DOF base bodies. You can accurately model complete closed kinematic systems in real time. *Building License. Requires SimCreator version 1.5 or higher.*
- **SimCreator Animation Component Library:** handles all real time visual rendering processes, including animated and static objects in the scene. This makes what the driver sees out the window seem very realistic. The visuals component is able to render VRML or OpenFlight databases in real time at 60Hz using resolutions of up to 1280x1024 pixels at 32-bit color depth. *Single-node license. Requires SimCreator v1.5 or better.*
- **SimCreator Simulation Component Library:** includes Animation Component Library plus Audio and Terrain Query components. Audio hardware provides 3-dimensional audio cues to match what the driver would expect under the conditions being simulated. Synthesized sounds include engine, wind, tire whine, and noise from other vehicles. *Single-Node License. Requires SimCreator v1.5 or better.*
- **SimVehicle LT:** Pre-built 4-wheeled high-fidelity real-time vehicle dynamic model. Included GUI software makes it easy to edit Vehicle data files or to create new vehicle models. SimVehicle LT can be used in operator-in-the-loop or hardware-in-the-loop simulators. SimVehicle models all four corners of the vehicle coupled with a 6-DOF Body component. A powertrain model calculates the torques at the wheels based on brake pedal, gear and accelerator pedal inputs. Each vehicle corner incorporates spring and damping rates, bump stops, anti-sway bars, anti-squat anti-dive geometry, and roll axis height. The unsprung mass is modeled as a separate body connected by a prismatic joint to the base body. SimVehicle LT is developed with SimCreator using its C Code generation features. *Single Node License.*

Scenario and Review Software

- **SimVista:** SimVista is a tile-based database and scenario authoring tool with various geo typical tiles that can be placed (drag and drop) to create rural, suburban, freeway and city driving scenarios. Tile based terrain tiles are from a library developed by RTI that you use to build your virtual world and then models such as trees, vehicles, pedestrians, animals, etc.; both static and dynamic can be placed in the scene to personalize it for your particular needs. Additional high-fidelity Urban tile sets are available as an add-on kit. *Single-node License.*
- **Scenario Runtime (Scenario Control Subsystem):** management software for controlling all dynamic and states entities within the simulated driving environment and surroundings, with the exception of Vehicle Dynamics of the simulator vehicle (ownership). Scenario control includes ambient traffic simulation, scripted events, relational behaviors and environmental controls. This subsystem also performs the data collection / performance measurement functions of the simulator. *Requires SimCreator v1.5 or later, and SimVista v1.0 or later.*



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- **SimObserver:** digital video capture subsystem software and hardware components used to capture real-time data streams and significant events for later analysis and review. Key features direct video capture to high quality MPEG-2 format, real time video titling, up to four camera views, event mark and review, remote command interface, synchronized video and data stream capture, and DVD archive solution.
- **Data Distillery:** Data Reduction, Review & Analysis. SimObserver's data review and analysis capability has been improved with the addition of The Data Distillery software package. Data Distillery allows you to open and synchronize all of your captured data sources into a configurable workspace for efficient review. It provides functions for:
 - Detailed data review, reduction, and analysis.
 - Graphical data display
 - Automated event identification.
 - Video-based event classification.
 - Scripted data reduction.

Systems

- **Core Driving Simulator:** a package for a driving simulator. Includes:
 - SimCreator
 - SimCreator Simulation Component Library
 - SimVehicleLT
 - Rack mount or desktop computer
 - High performance graphics card
- **Visual Channel:** computer system for displaying high-fidelity simulator graphics. Includes:
 - SimCreator
 - SimCreator Animation Component Library
 - Rack mount computer
 - High performance graphics card
- **SimForce (Control Loaded Steering):** SimForce is a high-fidelity force feedback steering system. The motor is driven by a powerful 600W servo amplifier, providing high torque and safe speeds. The dedicated DSP processor, executing with a 2000 Hz loop time, provides tight control and dedicated safety. In addition, the DSP's DX/DT velocity calculation provides smooth feedback. When coupled with Realtime Technologies' SimVehicleLT, power steer boost curves and tire aligning torque are accurately modeled and presented to the driver. *Normally requires a Core Driving Simulator.*
- **Overtilt Motion Algorithm:** OverTilt is RTI's Motion Drive Algorithm (MDA), designed to generate an optimal set of motion cues while keeping the motion system within its physical limits. The OverTilt algorithm can be quickly configured for a variety of motion bases, both large and small. RTI has achieved "adaptive" type algorithm performance without running into complex tuning requirements or the instabilities you usually encounter when using such algorithms.

Realtime Technologies Inc. (RTI) specializes in real time multibody vehicle dynamics, and graphical simulation and modeling. We offer simulation software applications, consulting, custom engineering, software, and hardware development. RTI's customer base includes university researchers throughout the U.S. and Canada, international, government and private entities. Founded in 1998, RTI is based in Royal Oak, Michigan, and has satellite offices in Lafayette, Colorado, and South Jordan, Utah.

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