BikeSim 2024.0 New Features

This document lists notable new features in BikeSim 2024.0.

VS Solver Architecture: Delayed Initialization

A new option to delay initialization was added to allow imported variables from external software such as Simulink to be used to initialize the vehicle state before the simulation starts. This is needed when variables that are critical for determining the initial state of the model are provided by user VS Commands or imported from external software. A new system parameter `OPT_DELAY_INIT` is used to choose an alternate time to perform the initialization. Details are provided in a new Tech Memo, *Initialize a Vehicle with Imported Ground Z*, and new examples were added to the database.

VS Math Models

3rd-Party Tire Model on Linux

Siemens MF-Tyre/MF-Swift tire model is now supported on Linux 64-bit system environment.

Real-Time Platform: Vector CANoe

The VS Solvers now support the Vector CANoe Real-Time platform, which includes VN8900, VT6000, and RT Rack. These devices together form the Vector Tool Platform and are equipped with a Windows operating system. The CANoe platform is supported by the existing VS Browser (using the **Models: Transfer to Remote RT Target** library). Example runs were added to the database and the **Real-Time and DS Systems > Vector CANoe Guide** documentation was added.

Documentation

Built-in Help Documents

The following Technical Memo was added:

1. Initialize a Vehicle with Imported Ground Z

The following Reference Manuals have been updated:

2. System Parameters in VS Math Models

3. VS Browser Reference Manual

4. VS Commands Reference Manual

5. VS Math Model Manual

The following RT and DS documents have been updated:

6. A&D Guide

7. Concurrent RT Guide

8. dSPACE RT Guide

9. ETAS RTPC Guide

10. NI RT Target Systems

11. RT-Lab Target Systems

12. Speedgoat Guide

Japanese Language

Japanese language documentation is now available from the user section of the Mechanical Simulation website. The documents available at the time of this writing are translated from versions 2023.1 and 2023.2, with 2024.0 equivalents available later.

Database

New examples were added in the following category.

Imported Ground Elevation

New simulations are added to show several methods for handling user-defined road surfaces using Simulink or VS Commands. The examples make use of the new system parameter OPT_DELAY_INIT that allows imported variable to be used during the initialization of the vehicle model. Details are provided in a new Tech Memo, *Initialize a Vehicle with Imported Ground Z.*