

# VECTO 3.x

09.05.2016



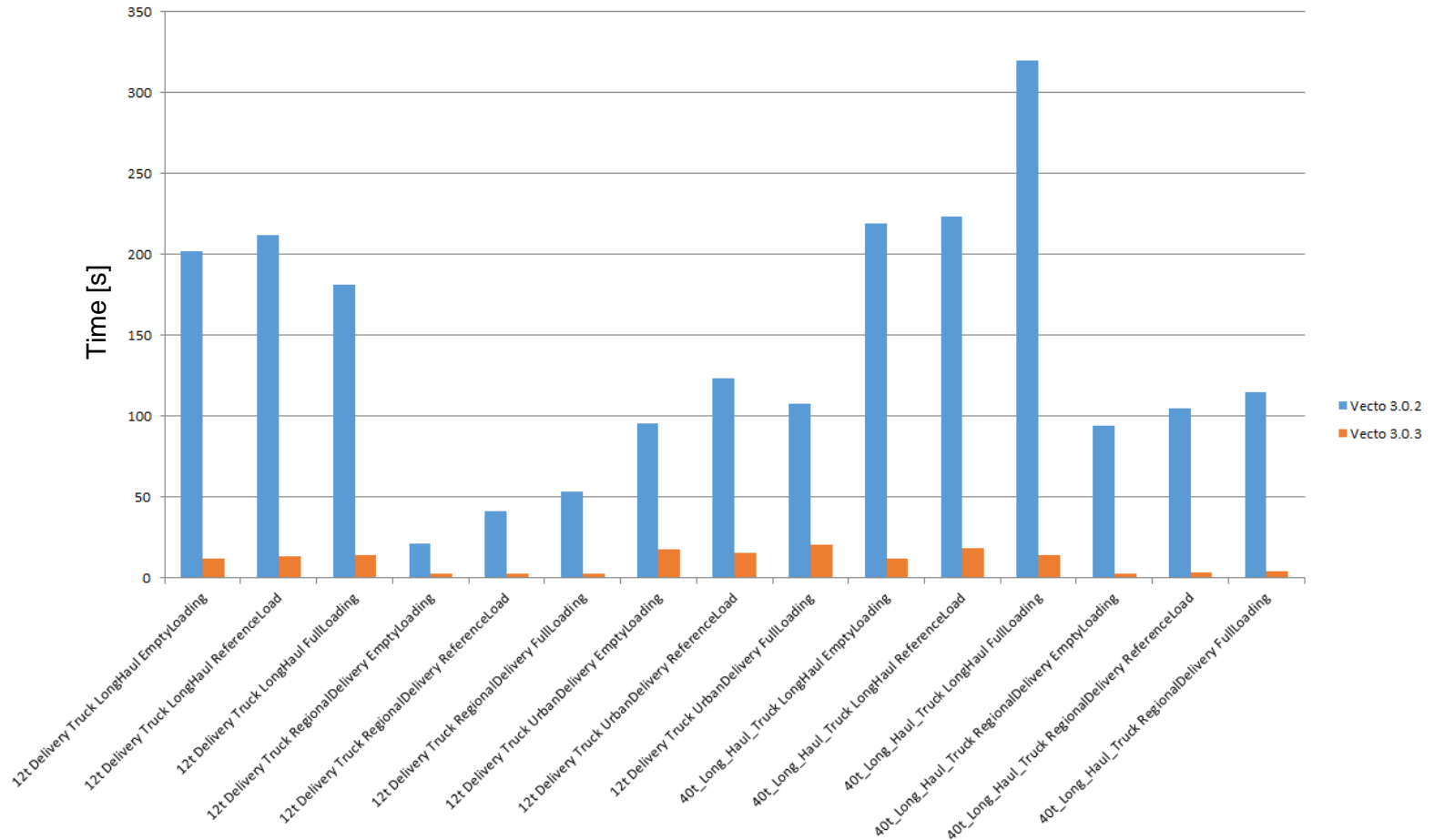
## Release Notes

## Vecto 3.0.3

- Main Updates
  - Support for Advanced Auxiliaries (Ricardo) in Vecto 3.0.3 and Vecto 2.2
  - Performance improvements
  - Gearshift polygons according to WB 2016
  - Revision of SUM-data file, changed order of columns, changed column headers
- Bugfixes
  - Delaunay Maps: additional check for duplicate input points
  - Creation of PDF Report when running multiple jobs at once
  - Sanity checks for gear shift lines
  - Improvements DriverStrategy: handling special cases

# Performance Comparison

Execution Times (all 15 runs in parallel)



Total execution time (15 runs in parallel): Vecto 3.0.2: 6min 6s; **Vecto 3.0.3: 35s**

# VECTO 3.0.2

## Main updates

- New simulation modes:
  - Pwheel (SiCo),
  - Measured Speed (with/without gear)
  - $v_{\text{air}}$ /beta cross-wind correction (vcdb)
- Adaptations of powertrain components architecture
  - Move wheels inertia from vehicle to wheels
  - Auxiliaries no longer connected via clutch to the engine but via a separate port
  - Engine checks overload of gearbox and engine overload
- Fixed some driving behavior related issues in VectoCore:
  - When the vehicle comes to a halt during gear shift, instead of aborting the cycle, it tries to drive away again with an appropriate gear.
- ModData Format changed for better information and clarity
- Added validation of input values (according to latest VectoInputParameters.xls)
- Various bugfixes

## Pwheel (SiCo) Mode

- Function as already available in Vecto 2.2 also added in Vecto 3.0.2
  - Driving cycle specifies power at wheel, engine speed, gear, and auxiliary power
  - No driver model in the simulation.
  - The Vecto gear-shift model is overruled.
  - Function used for creating reference results for SiCo tests
  - For details see user manual: Simulation Models / Pwheel Input (SiCo)

## Measured Speed Mode

- Functionality already available in Vecto 2.2 added in Vecto 3.0.2
  - Driving cycle not defined by target speed but by actual speed. No driver model in the simulation.
  - Gear and engine speed can be specified in the driving cycle. In this case the Vecto gear-shift model is overruled.
  - Function used for “proof of concept” purposes
  - For details see user manual: Calculation Modes / Engineering Mode / Measured Speed

## **.vmod File Update**

- In Vecto 3.0.2 the structure of the modal data output has been revised and re-structured. Basically for every powertrain component the .vmod file contains the power at the input shaft and the individual power losses for every component. For the engine the power, torque and engine speed at the output shaft is given along with the internal power and torque used for computing the fuel consumption.
- For details see the user manual: Input and Output / Modal Results (.vmod)

# Changelog 3.0.2

- - New simulation modes:
  - + Measured Speed
  - + Measured Speed with Gear
  - + Pwheel (SiCo)
- - Adaptations of powertrain components architecture
  - + Move wheels inertia from vehicle to wheels
  - + Auxiliaries no longer connected via clutch to the engine but via a separate port
  - + Engine checks overload of gearbox and engine overload
- - Fixed some driving behavior related issues in VectoCore:
  - + When the vehicle comes to a halt during gear shift, instead of aborting the cycle, it tries to drive away again with an appropriate gear.
- - [ModData Format](#modal-results-.vmod) changed for better information and clarity
- - Entries in the sum-file are sorted in the same way as in Vecto 2.2
- - In engineering mode the execution mode (distance-based, time-based measured speed, time-based measured speed with gear, engine only) are detected based on the cycle
- - Added validation of input values
- - Gravity constant set to 9.80665 (NIST standard acceleration for gravity)
- - Improved input data handling: sort input values of full-load curves (engine, gbx, retarder)
- - Better Integration of VectoCore into GUI (Notifications and Messages)
- -  $v_{air}/\beta$  cross-wind correction (vcdb) implemented
- - For all calculations the averaged values of the current simulation step are used for interpolations in loss-maps.
- - Allow extrapolation of loss maps in engineering mode (warnings)
- - Refactoring of input data handling: separate InputDataProvider interfaces for model data
- - Refactoring of result handling: separate result container and output writer
- - New Long-Haul driving cycle included
- - User Manual updated for VECTO V3.x
- - Fix: sparse representation of declaration cycles had some missing entries
- - Bugfix: error in computation of engine's preferred speed
- - Bugfix: wrong vehicle class lookup
- - Bugfix: duplicate entries in intersected full-load curves
- - Bugfix: retarder takes the retarder ratio into account for lossmap lookup
- - Bugfix: use unique identifier for jobs in job list
- - Bugfix: error in triangulation of fuel consumption map