VECTO 2.2

09.09.2015

Release Notes

VECTO 2.2

Main updates

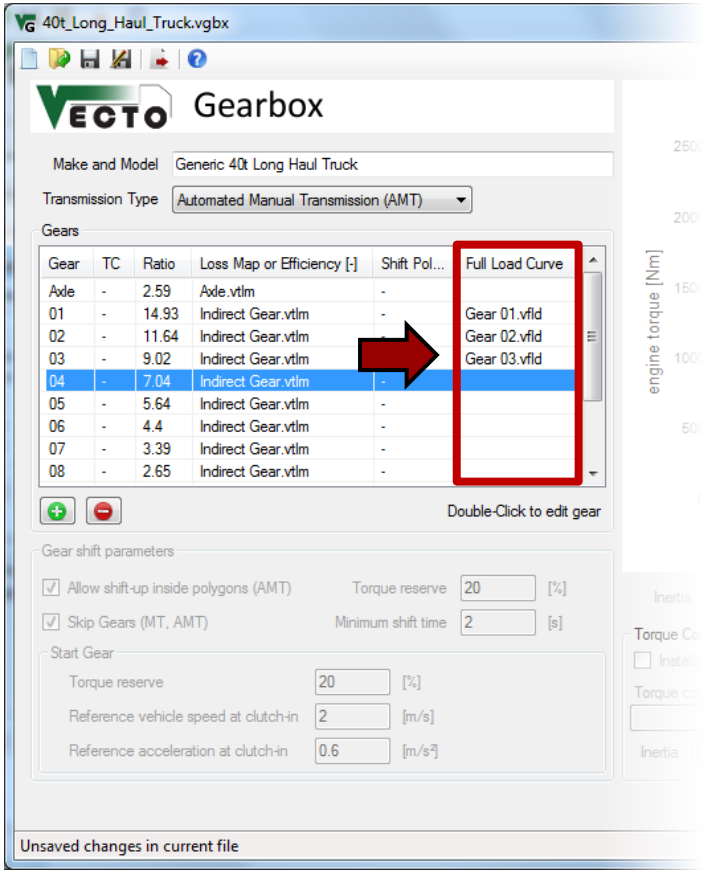
- **Moved gear-specific Full Load Curves to Gearbox File**
- **Combined Drag Coefficient * Cross Sectional Area in one input parameter**
- **Removed WHTC Correction Factor Calculation.**
- **Added link to CITnet / JIRA**

Gear-specific Full Load Curves

Gear-specific Full Load Curves are now defined in the Gearbox File

- **Used for torque limiting**
- **Basis for generic shift polygons***
- **If no file is defined, the engine full load curve is used.**

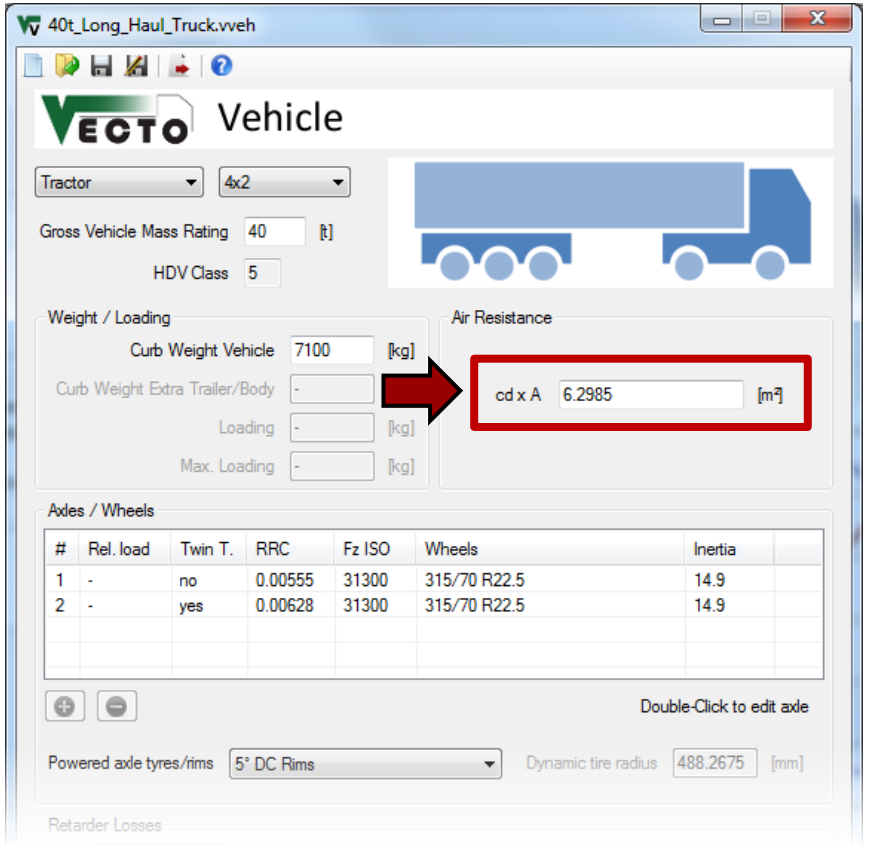
*The torque curve used for generation of shift polygons is the minimum curve of engine full load curve and gear box "full load" curve



Combined Drag Coefficient * Cross Sectional Area

VECTO now uses the c_dxA product instead of separating the two parameters

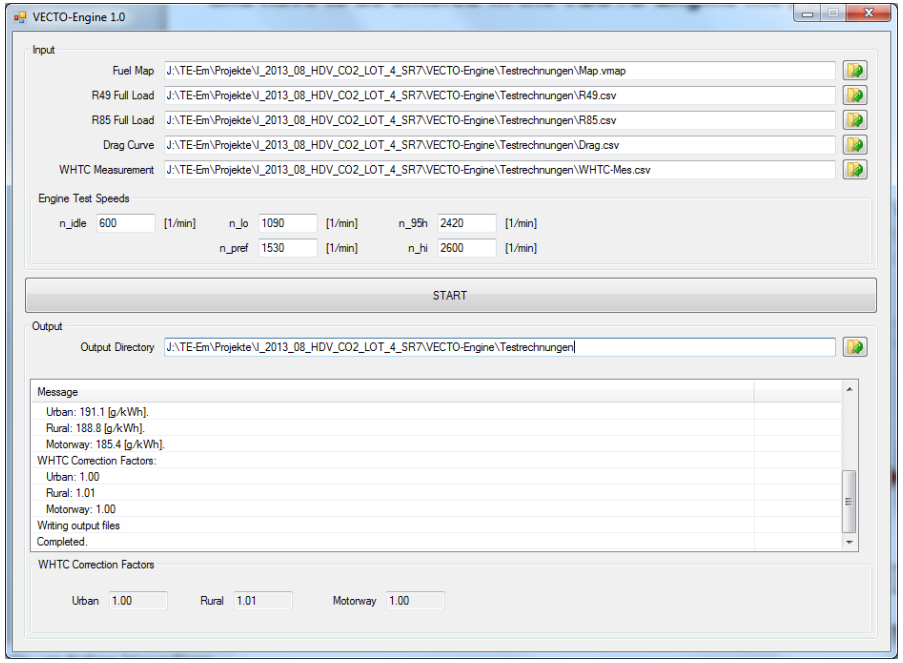
- **VECTO CSE exports the c_dxA product, which can now be inserted into VECTO without separating.**
- **Old .vveh files are compatible.**



Removed WHTC Correction Factor Calculation

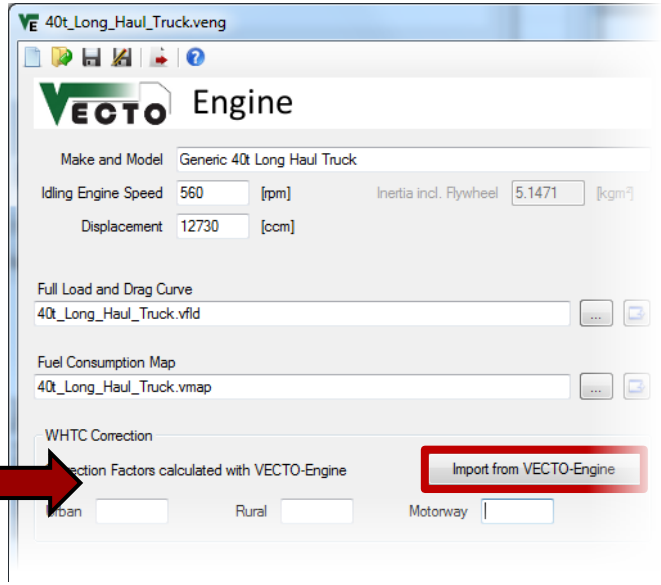
The WHTC Correction Factors are now calculated in an external tool, VECTO-Engine and have to be loaded in the VECTO Engine file (.veng) via an XML transfer file (or entered manually)

VECTO-Engine (distributed separately)



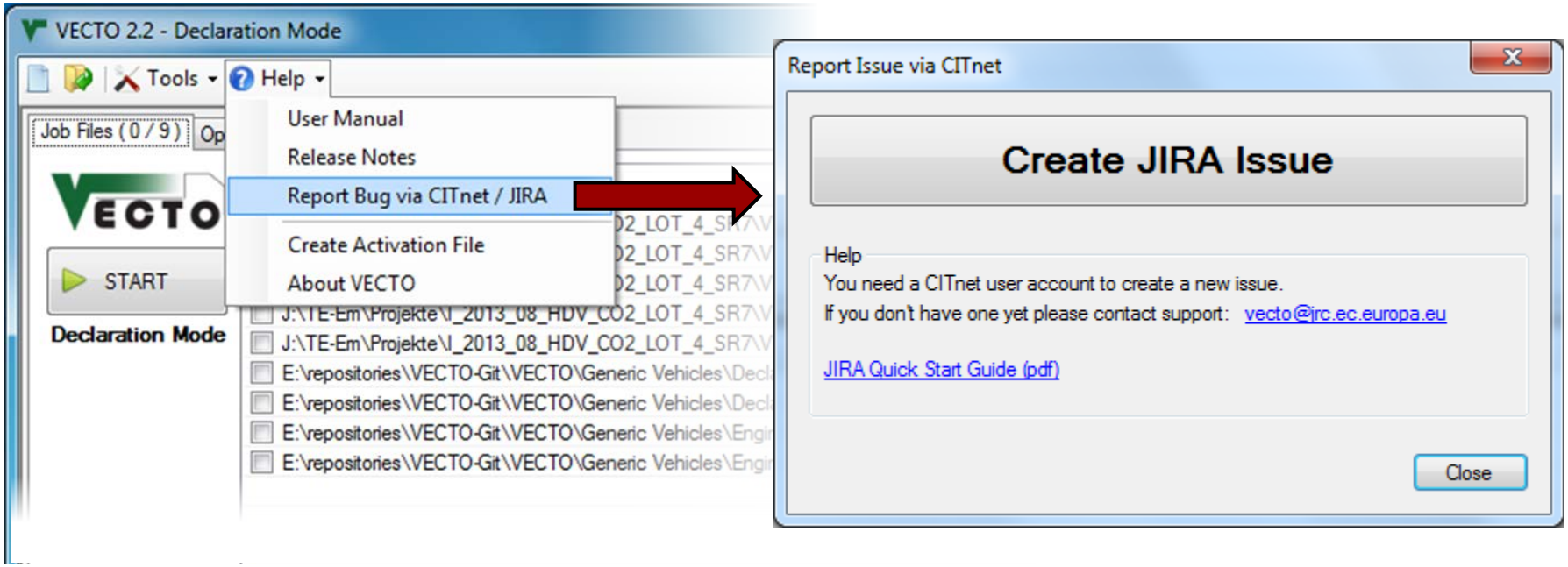
XML

Engine Editor



Create JIRA Issue

Use the button in the Help menu to go to JIRA or open a Quick Start Guide.



Full Changelog since V2.1.4

VECTO 2.2

- Bugfix: Error in Declaration Mode Pneumatic System aux power calculation ([kW] were interpreted as [W])
- Bugfix: Error in Declaration Mode Electric System aux power calculation
- Moved gear-specific Full Load Curves to Gearbox File
- Combined Drag Coefficient * Cross Sectional Area in one input parameter
- Updated .vgbx file format (Added gear-specific Full Load Curves)
- Updated .veng file format (Removed gear-specific Full Load Curves)
- Updated .vveh file format (Combined Drag Coefficient * Cross Sectional Area in one parameter)
- Updated Generic Vehicles (new file formats)
- Removed WHTC Correction Factor Calculation. Now in external tool, VECTO-Engine.
- Test Options are now only available in Engineering Mode
- Gearbox Editor now shows generic and user-defined shift polygons (if available)
- Various small updates in GUI
- Added 'Create JIRA Issue' dialog

For full changelog see VECTO Main Form > Help > User Manual or CITnet.

Full Changelog since V2.1

VECTO 2.1.4

- Bugfixes in start gear and (A)MT shift model
- Updated Coach .vcdv file for higher speeds to avoid extrapolation
- Renamed output "FC" to "FC-Map" for better clarification
- Same header for g/h and g/km output
- Reduced minimum turbine speed for 1C-to-2C AT up-shift condition from 900 to 700rpm.
- Updated cross wind correction parameters to current White Book values

VECTO 2.1.3

- PwheelPos output in VSUM file.
- Implemented new Cd*A(v) method
- Bugfix in TC model
- Bugfix: Unit error in Cd(v) methods caused incorrect Delta-Cd value being used

VECTO 2.1.2

- Improved TC iteration for higher precision
- Extended possible TC speed ratio

VECTO 2.1.1

- Bugfix: Incorrect torque calculation in AT/TC model caused early up-shifts
- Updated C-to-C shift strategy with acc_min rule (see V2.1)

For full changelog see VECTO Main Form > Help > User Manual or CITnet.

VECTO 2.1

21.04.2015

VECTO

Vehicle Energy Consumption Calculation Tool

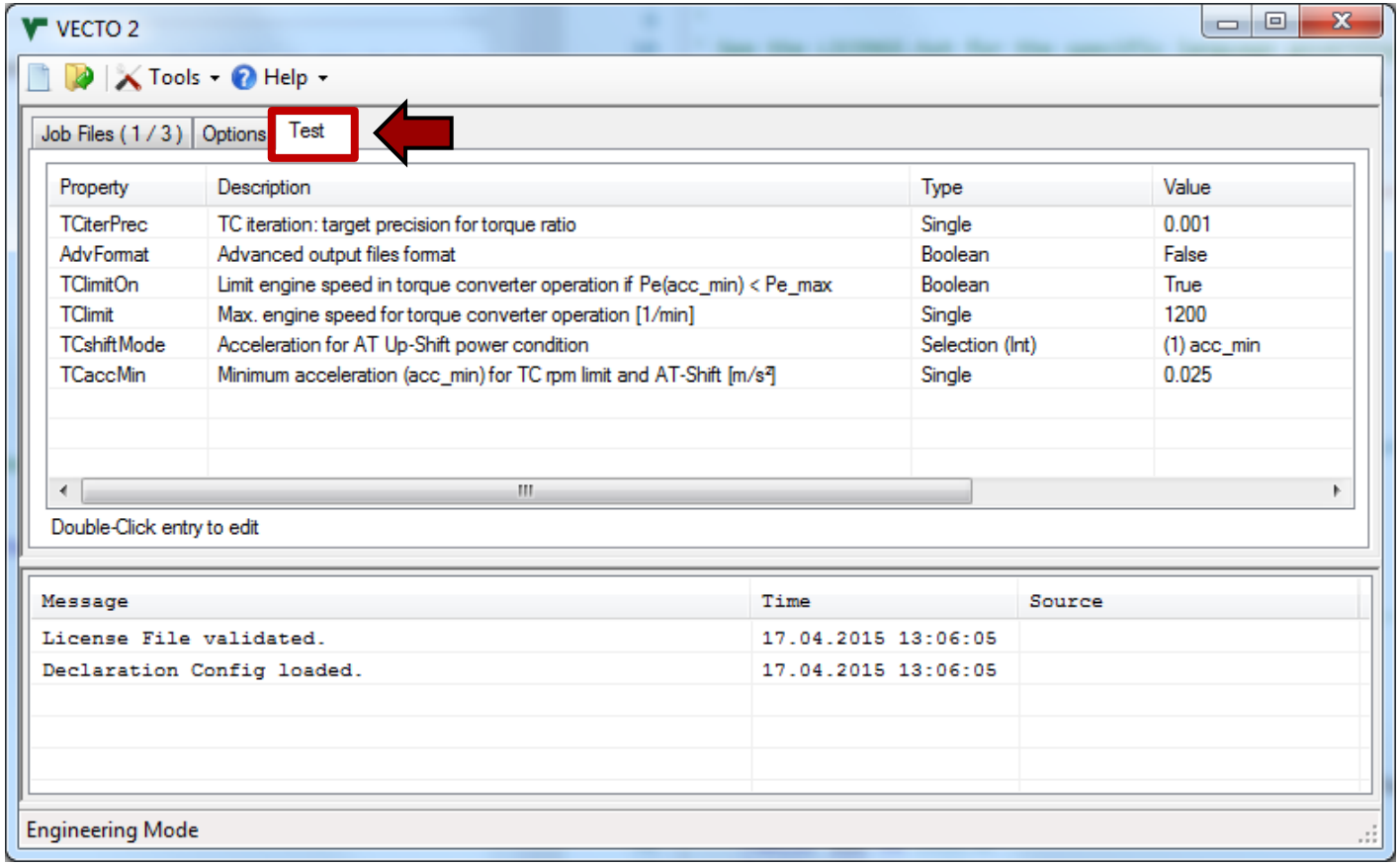
Release Notes

VECTO 2.1

- **New AT/TC options:**
  - Limit engine rpm in torque converter operation acc. ≥ acc_{min}
  - Shift up (C-to-L, L-to-L) if acc. ≥ acc_{min} and next-gear-rpm > threshold
  - rpm limit [1/min] and acc_{min} [m/s^2] parameters are currently user-defined
  - C-to-C up-shift condition based on N80h engine speed (instead of N95h)
- **P_{wheel} input (SiCo test mode)**
  - P_{wheel} as cycle input
  - Overwrites power calculation
  - VECTO only calculates power train losses, engine torque/rpm and fuel consumption

AT/TC model update

"Test" tab in main form includes new parameters.



Note: This is a temporary solution until model and parameters are verified!

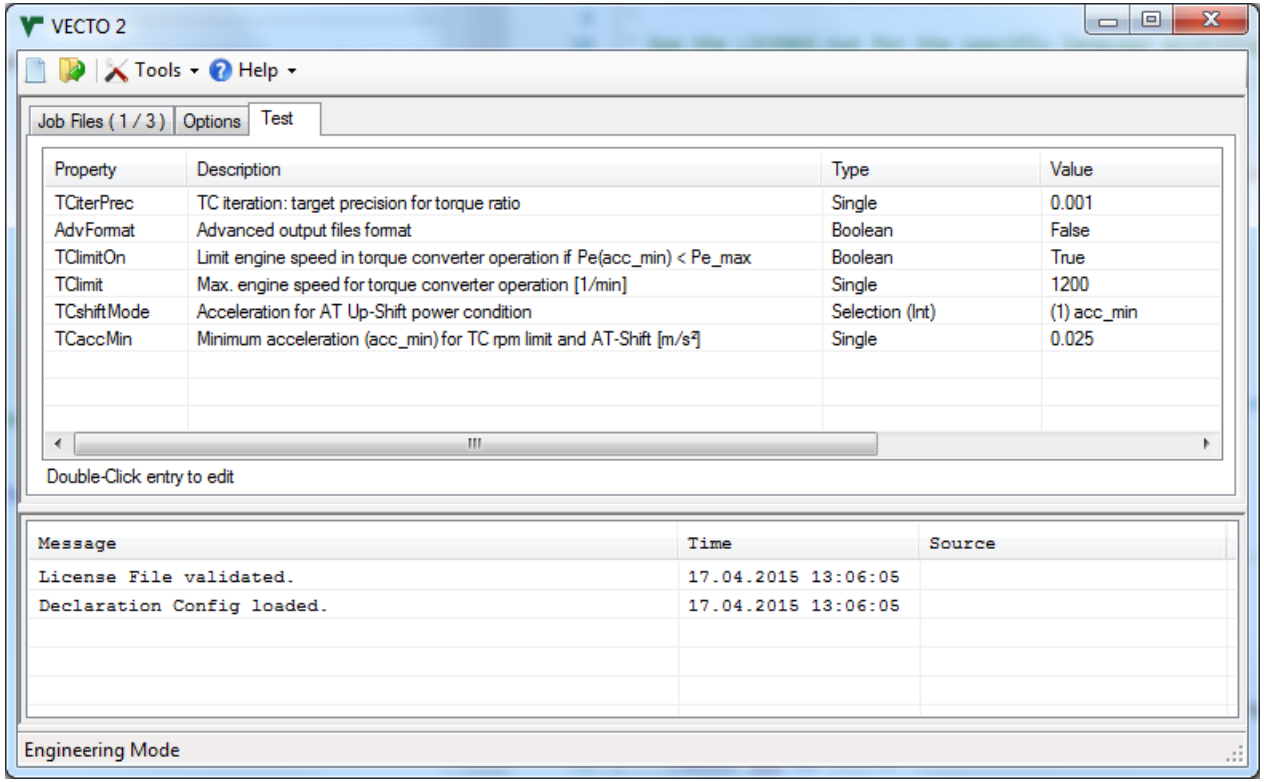
AT/TC model update

- **New AT/TC paramters:**
  - **TClimitOn (True / False)**
    - Enables engine rpm limit in TC operation
  - **TClimit [1/min]**
    - engine rpm limit (if TClimitOn = True)
  - **TCshiftMode (0/1)**
    - **Mode 0: acc_target** - Shift up if power demand with target acc. < power-max (pre-V2.1 default)
    - **Mode 1: acc_min** - Shift up if power demand with min. acc. < power-max
  - **TCaccMin [m/s²]**
    - Minimum acceleration for ShiftMode 1 and TClimit

Note: This is a temporary solution until model and parameters are verified!

AT/TC model update

- **Change parameters in Test tab by double-click**
- **Parameters are saved on application level (..\config\DEVconfig.txt)**



Note: This is a temporary solution until model and parameters are verified!

P_{wheel} Input (SiCo Mode)

- **P_{wheel}** can be defined in driving cycle to overwrite power calculation
- Requires **Gear** and **Engine Speed** input
- Cycle identifier: <Pwheel>
- Only time-based cycles are supported
- Distance Correction must be disabled (Options tab in main form)

Example driving cycle

<t>	<Pwheel>	<Gear>	<n>
1	0.0	0	560.0
2	0.0	0	560.0
3	14.0	1	593.2
4	51.9	1	705.5
5	60.0	2	690.0
6	85.6	2	868.4
7	92.0	3	820.0
8	112.3	3	897.6
...	...	...	...

P_{wheel} Input (SiCo Mode)

- **Constant point calculation**
  - Define (at least) two identical times steps
  - (Optional) Add additional auxiliary power consumption with **<Padd>**
  - It is suggested to define **one cycle per constant point** and use **Batch Mode**

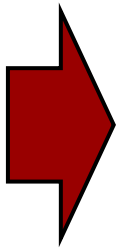
Example: Calculation of two constant points tests

Cycle 1.vdri

<t>	<Pwheel>	<Gear>	<n>	<Padd>
1	50.0	3	980.0	3.0
2	50.0	3	980.0	3.0

Cycle 2.vdri

<t>	<Pwheel>	<Gear>	<n>	<Padd>
1	160.0	4	1020.0	3.0
2	160.0	4	1020.0	3.0



.vsum results

Cycle [-]	time [s]	Ppos [kW]	Pneg [kW]	FCh [g/h]
Cycle 1.vdri	1	57.4	0	11481.3
Cycle 2.vdri	1	172.0	0	31922.2

Full Changelog V2.1

- Limit engine rpm in torque converter operation acc. > acc_min
- Shift up (C-to-L, L-to-L) if acc. > acc_min and next-gear-rpm > threshold
- C-to-C up-shift condition based on N80h engine speed (instead of N95h)
- Pwheel-Input (SiCo Mode)
- FC [g/h] is always saved in output (in addition to [g/km]), not only in Engine Only mode
- GUI: Corrected air density unit in GUI
- Bugfix: Format error in .vmod header