# Virtual Formula 2022
# Getting Started

Within the download package, you will find the following subfolders:



If you want, you can copy these folders and their contents to a different directory.

Opening the Working_Directory folder you will find the following files:



Double clicking the file VI-CRT_20.BAT will simply open VI-CarRealTime and automatically set the working directory to the directory from which you ran the file.

To load the provided Virtual Formula vehicle model, first we should register the database. To do this, press "Edit" then "Preferences…".
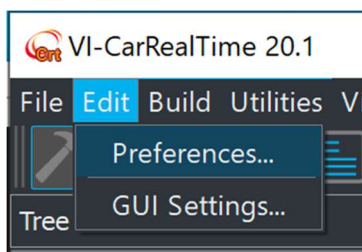


Here we can see the automatically registered databases. To add the Virtual Formula model, go on the Database tab, press "Add New…" and then find and click on the VI_Racer.cdb folder and finally press "Select Folder".  At this point you should see something like the following image:
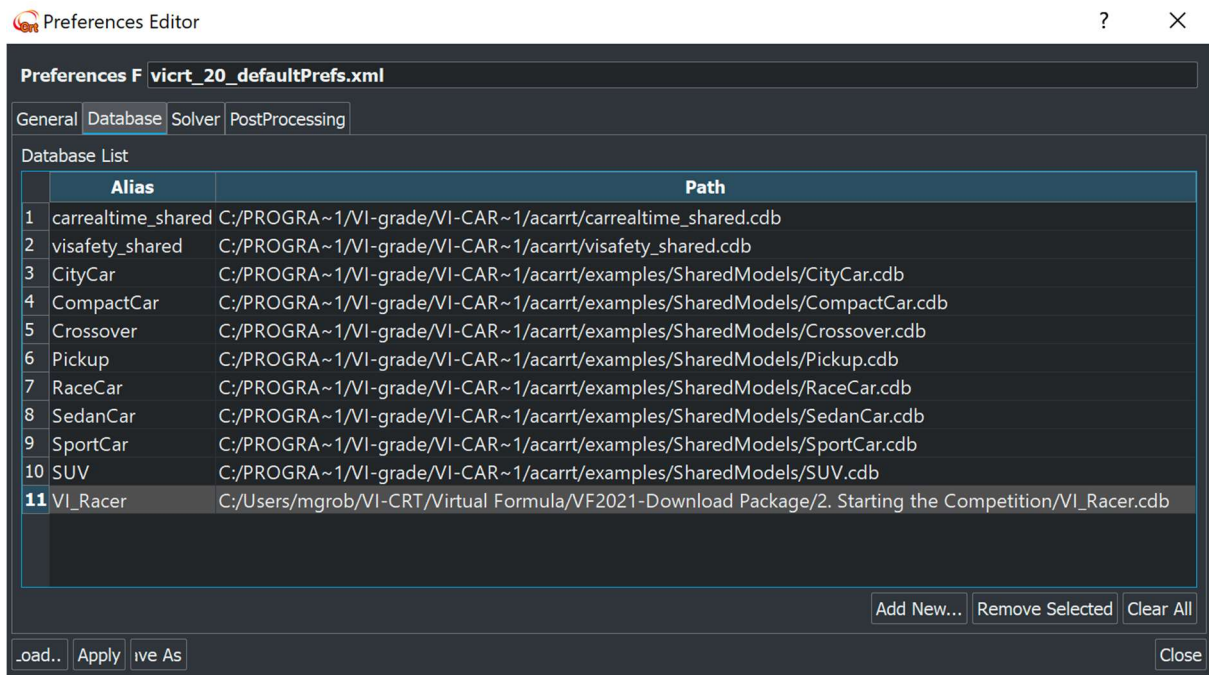
Now press "Apply" and then "Save As..." and overwrite the file called "vicrt_20_defaultPrefs.xml".

This means that the next time you open VI-CarRealTime through the VI-CRT_20.BAT file, VI-CarRealTime will open with your vehicle model database already registered.

To load the vehicle model, first you must be in "Build Mode". To do this, simply click the  icon. Then right click in the Models Tree window and select "Load Model...".
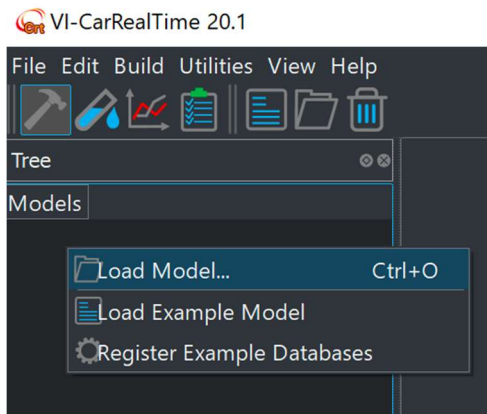


On the left side of the new window, you can find your registered databases. Select VI_Racer, and then select VI_Racer_E.xml. Finally press "Open".
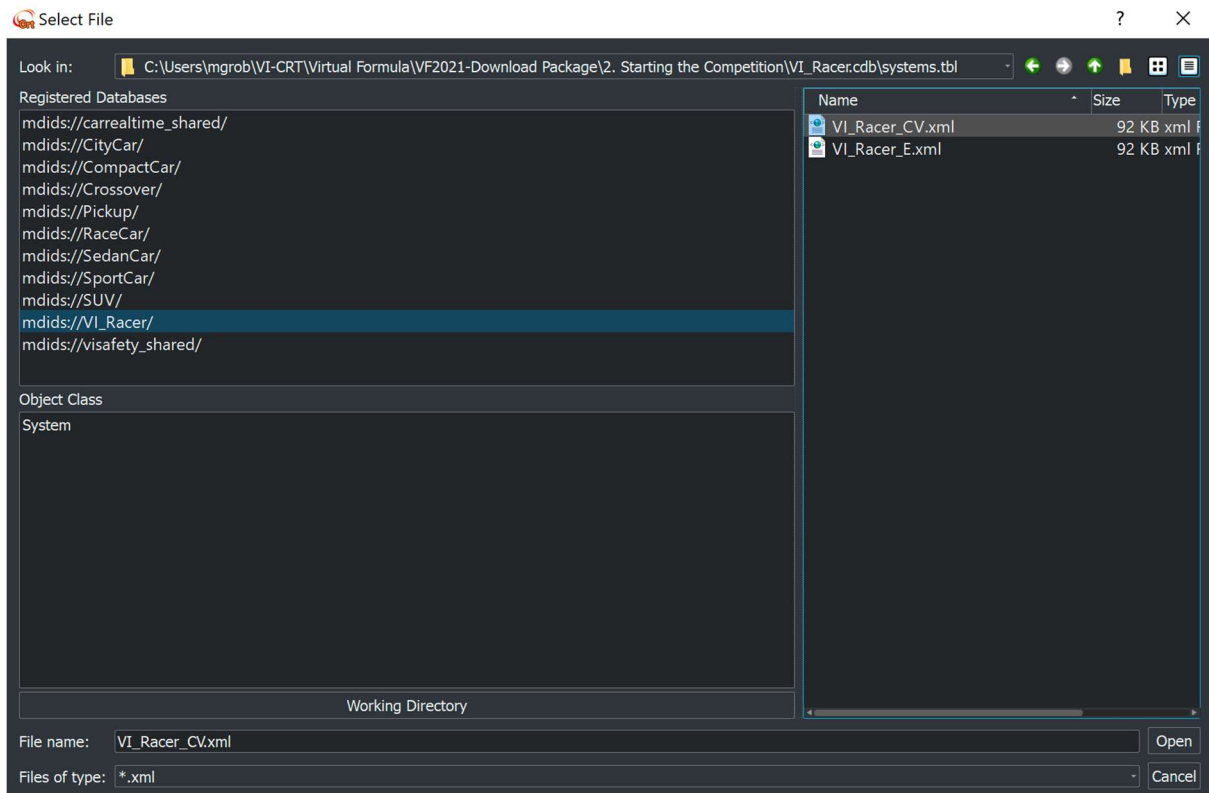
Now you can see your vehicle model is loaded. Clicking on the subsystems will allow you to see how the model is currently configured.
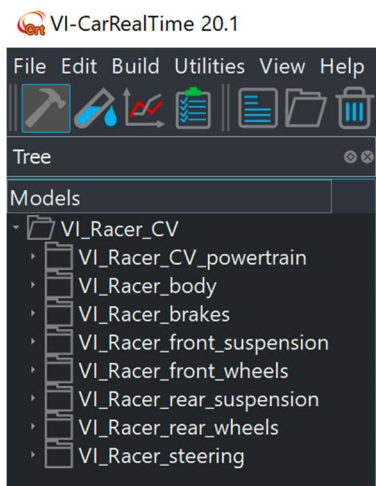


To run a simulation, you must move to "Test Mode" by pressing the  icon. Simulations are organized in "Fingerprints". To load a provided fingerprint file, right click in the Fingerprints Tree window and select the file named "fp_E.xml"
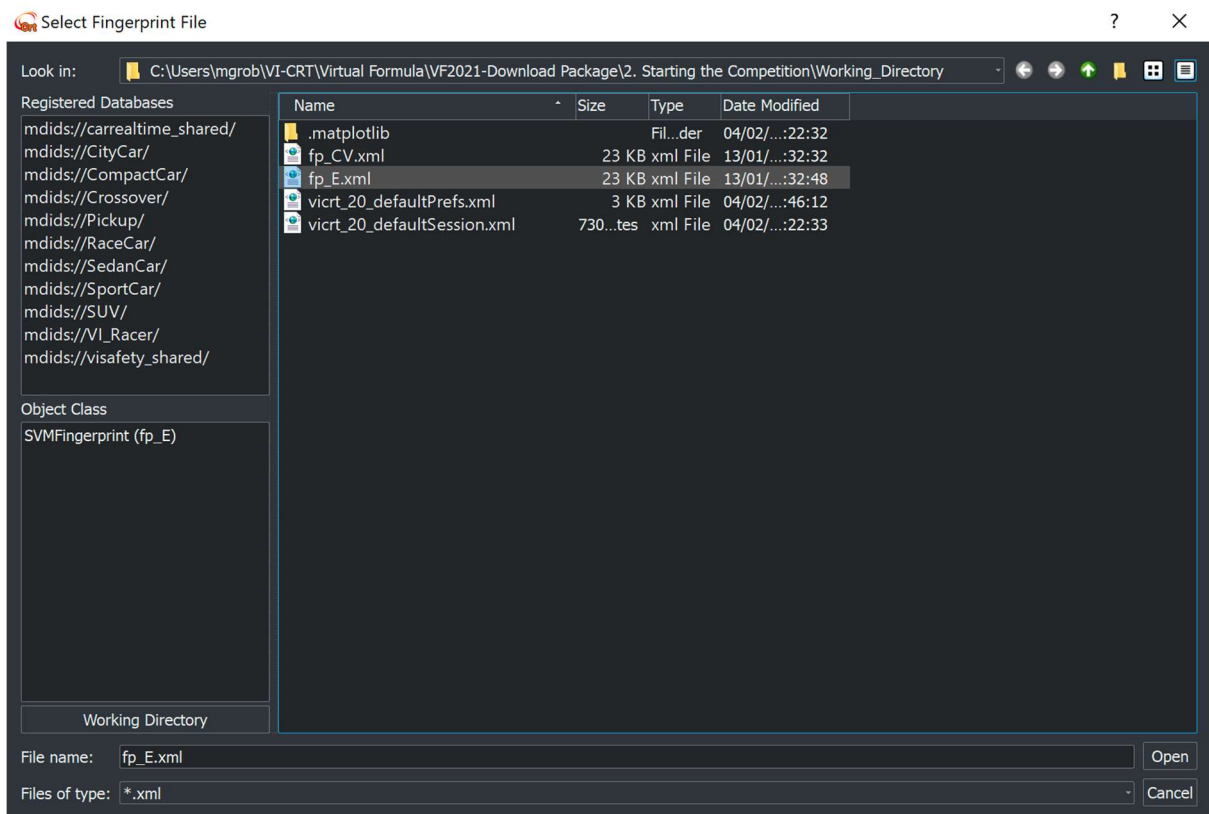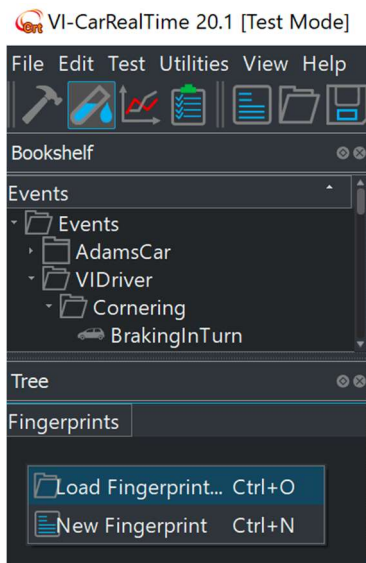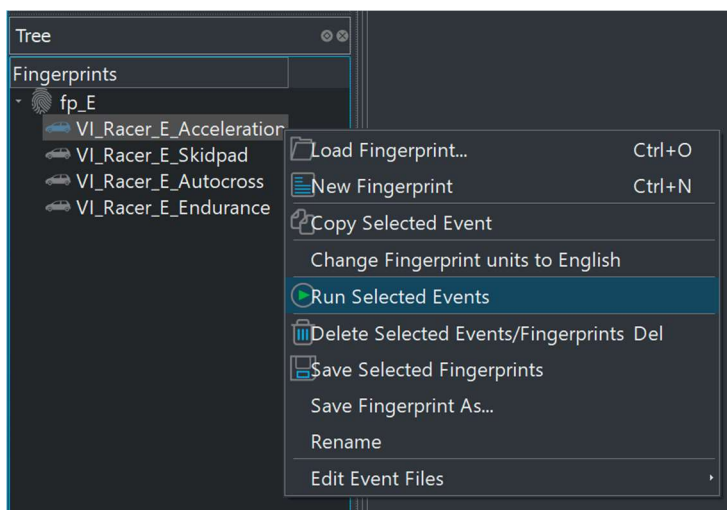
Now you can see that the fingerprint is loaded, and inside the fingerprint are 4 simulations ready to be run. These 4 simulations are
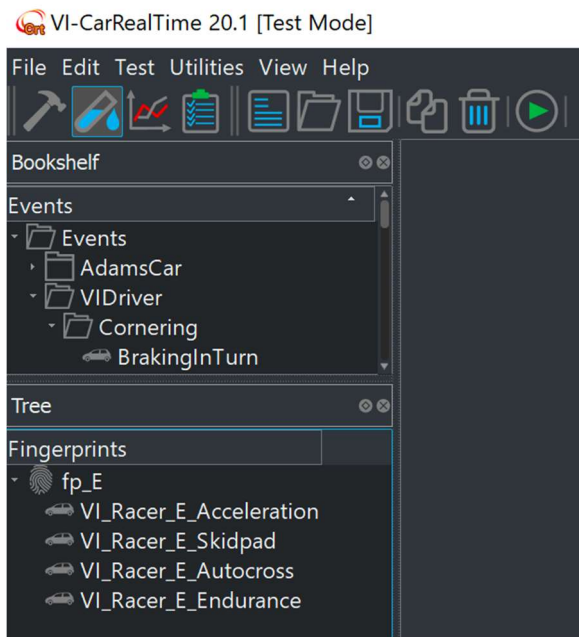
To run all the simulations, right click on the fingerprint name, and select "Run Selected Events".
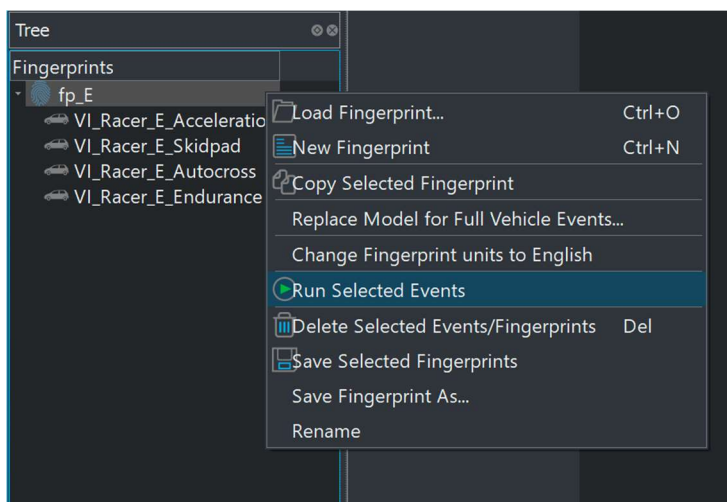


Alternatively, to run an individual simulation, you can right click directly on a single event.

A Python Task Window will pop up and display some information regarding the status of the simulation. This window must not be closed until the simulations have finished running, otherwise the simulation will be killed.



Once the simulations have finished, you can review the results by going to "Review Mode" by clicking on the  icon.
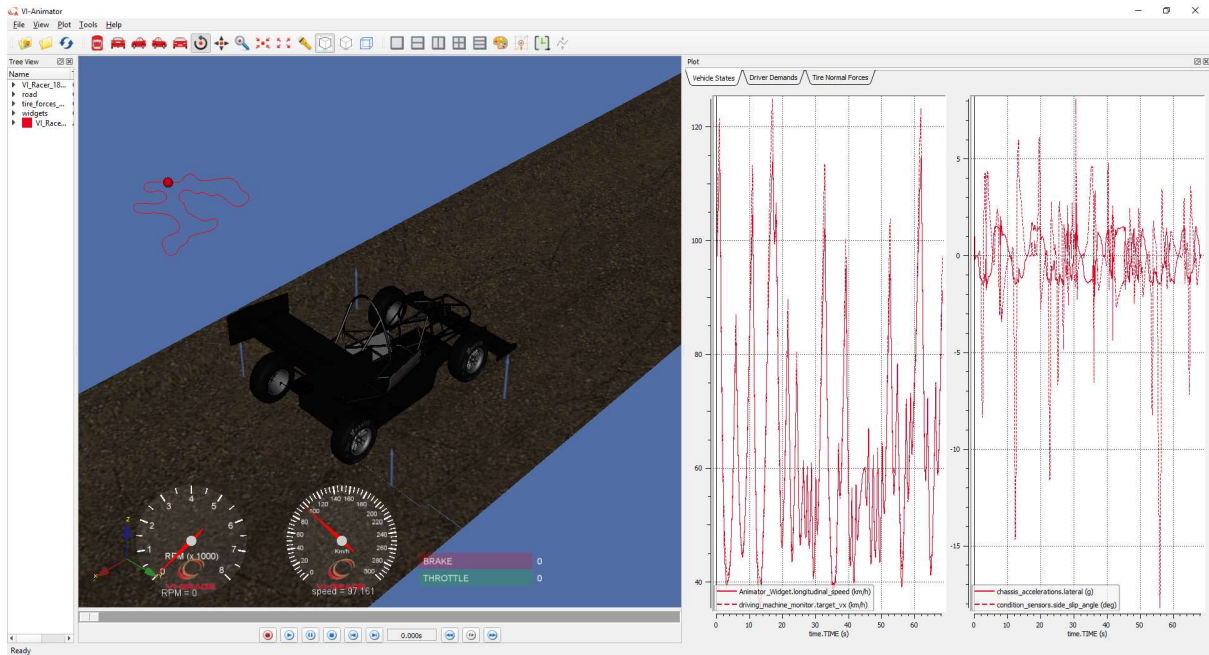
You can see the same fingerpint as when you were in Build Mode. To review the endurance result, right click on the event, and select "Execute Postprocessing...".
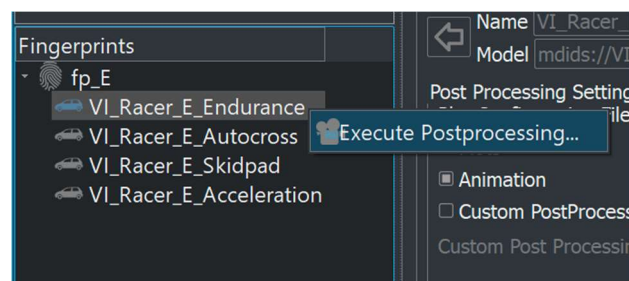


This will open VI-Animator. Press the play button to watch the result.

On the right side you can see some plots. To create your own plots, right click after the last tab, and select "Insert after". This will create a new tab that can be renamed by double left clicking on the tab. To plot something, right click inside the plot, and select "Curves". On the left side you can find all the channels of recorded data.

For the EV class, you will need to calculate the kWh used by the vehicle during the endurance event. From the Tree View window, right click on the VI_Racer_E_Endurance Analysis and select "Import…".
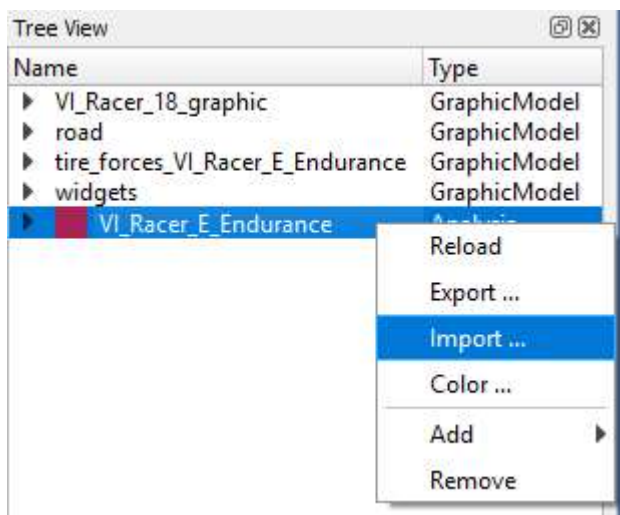


Go to the VI_Racer.cdb and open the file "kWh_Calc.xcd". Now you can create a new plot for the channel "kWh". Pressing the icon allows you to see the value of points on the plot by moving the cursor to the point of interest. In this case you should see that the final kWh is 0.559.
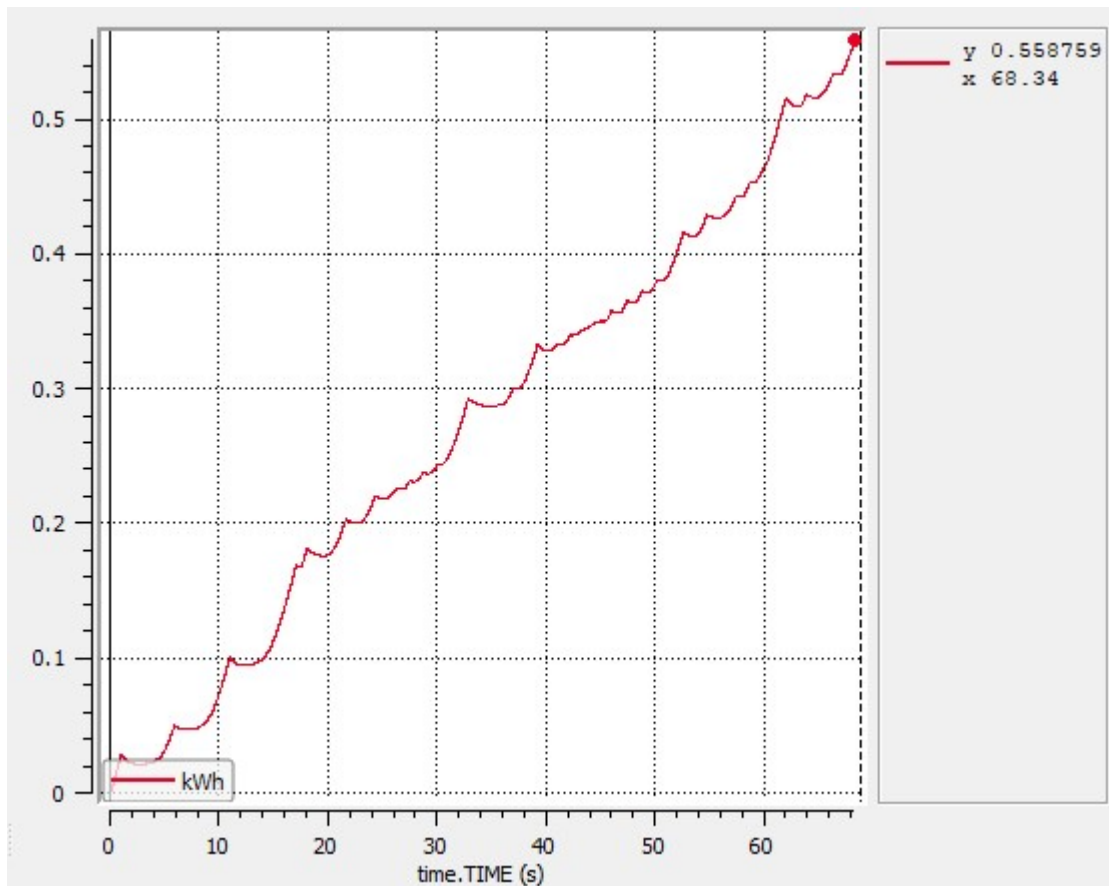
For more information, please refer to the official documentation for VI-grade software.