

Modelica Performance and Reliability Model Libraries

User Documentation

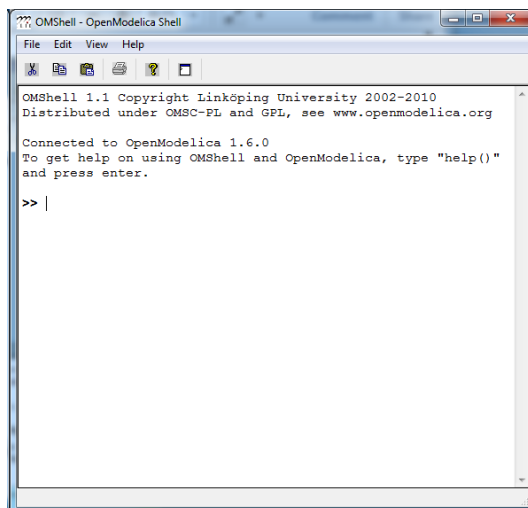
Modelica Library Usage

The Modelica library structure contains the performance and reliability models of the Electric Power System (EPS) and the combat vehicle Ramp Model:

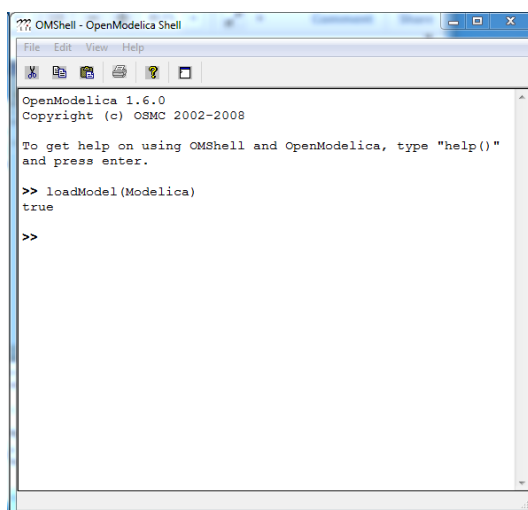
- The AdaptP package contains the performance models
- The AdaptR package contains the reliability models
- The RampMeta package contains the combat vehicle ramp model

In order to load and execute the Modelica models the following step needs to be performed

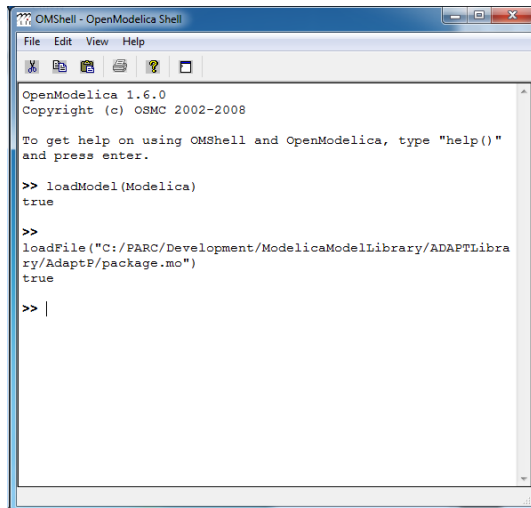
1. Download and install the latest Windows version of the Open Modelica Compiler from <http://www.openmodelica.org>
2. Save and unzip the AdaptLibrary.zip on your disk.
3. The following is an interactive session handler in the OpenModelica environment called OMSshell – The Open Modelica Shell. The Windows version which at installation is made available as OpenModelica Shell which responds with an interaction window.



4. Load the Modelica Standard Library by invoking the loadModel(Modelica) command

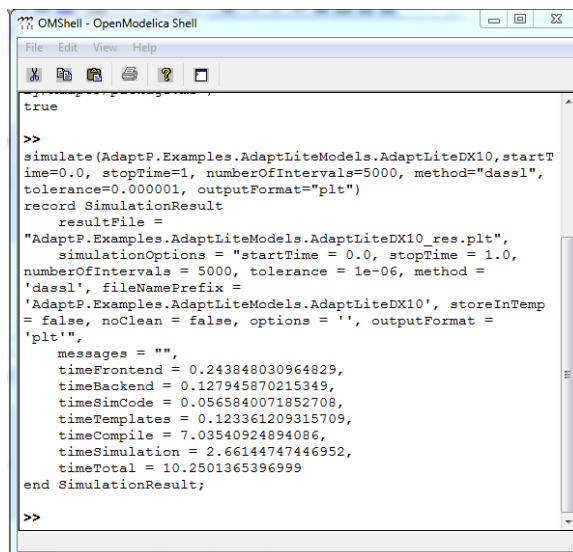


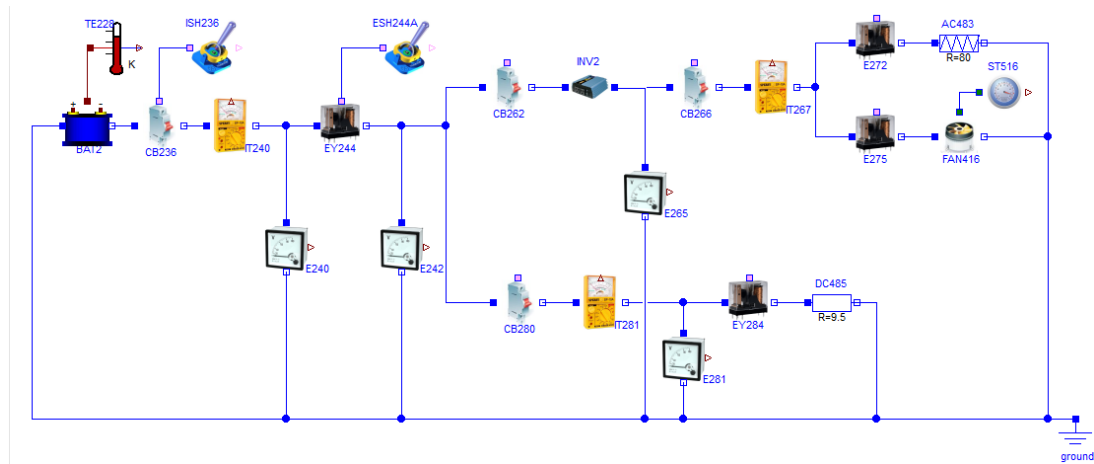
5. Load the AdaptP package by invoking the loadFile command with the path to the Modelica package file path as an argument.



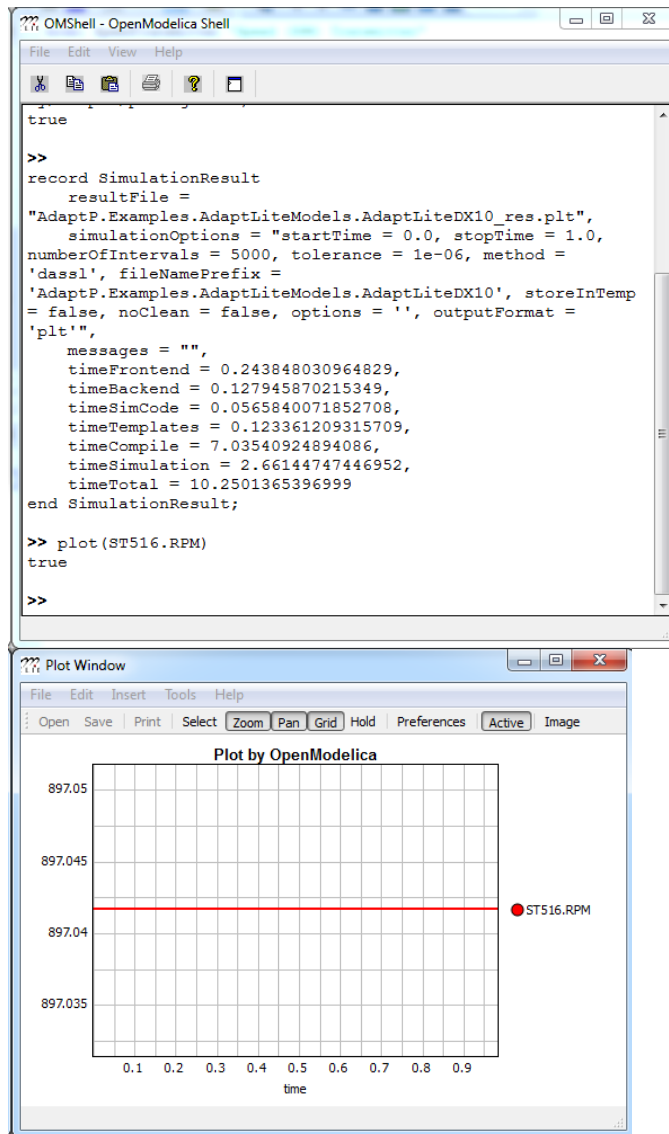
6. Simulate the AdaptLiteDX10 model from the AdaptP package by invoking the simulate command with the parameters shown in the figure below:

```
simulate(AdaptP.Examples.AdaptLiteModels.AdaptLiteDX10,startTime=0.0,
stopTime=1, numberOfIntervals=5000, method="dassl",
tolerance=0.000001, outputFormat="plt")
```

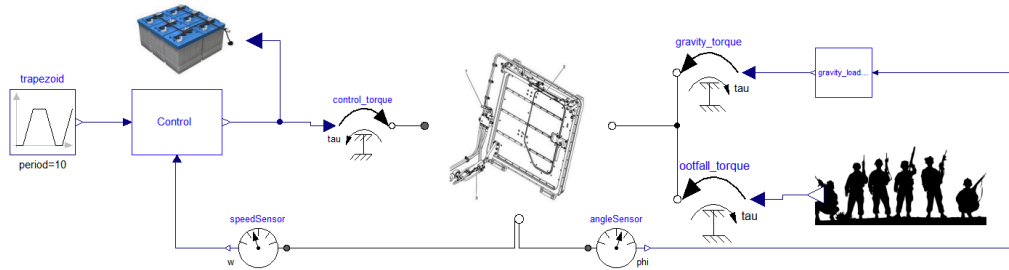




7. Plot the RPM value of the ST516 Fan



8. The RampMETA model can be simulated in a similar way:
9. Load the RampMETA package by invoking the loadFile command with the path to the Modelica package file path as an argument.
10. Simulate the Ramp_A03 model from the RampMETA.Examples package by invoking the simulate command with the parameters shown in the figure below:



```
simulate(RampMETA.Examples.Ramp_A03,startTime=0.0, stopTime=10,
numberOfIntervals=5000, method="dassl", tolerance=0.000001,
outputFormat="plt")
```

11. Plot the angular velocity of the door during opening given by the speed sensor (speedsensor.w) and the prescribed angular velocity during opening (trapezoid.y)

