Traning Notes

Agenda

Agenda for 27th of April (Trainer: Marin Miletic):

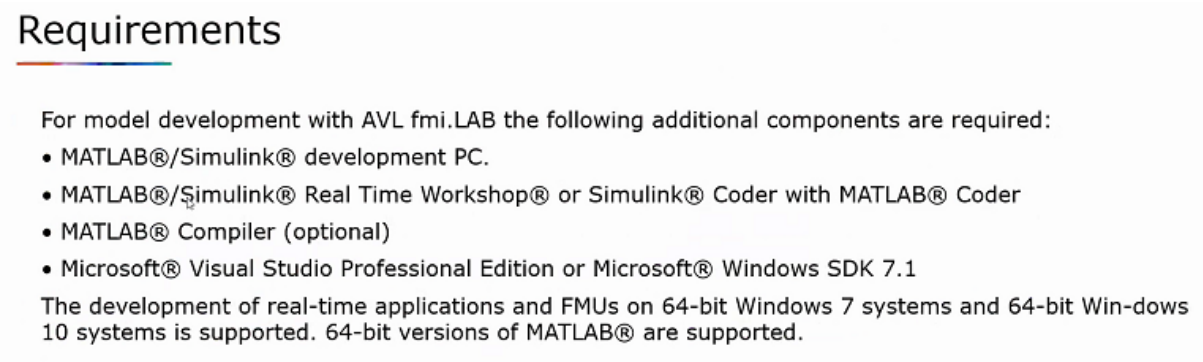
- FMI – Matlab preparation, interface, parameters, I/O ports reading/writing/editing, and model integration
- VSM – integration and co-simulation with Matlab

Agenda for 28th of April (Trainer: Jurica Mustac):

- Model. Connect – building model and handling simulation results, interfacing with VSM and VTD
- VTD – general, scenario editor, image generator, interfacing, co-simulation, advanced scenarios

Day1 - FMU

Software Requirements


Requirements

For model development with AVL fmi.LAB the following additional components are required:

- MATLAB®/Simulink® development PC.
- MATLAB®/Simulink® Real Time Workshop® or Simulink® Coder with MATLAB® Coder
- MATLAB® Compiler (optional)
- Microsoft® Visual Studio Professional Edition or Microsoft® Windows SDK 7.1

The development of real-time applications and FMUs on 64-bit Windows 7 systems and 64-bit Win-dows 10 systems is supported. 64-bit versions of MATLAB® are supported.

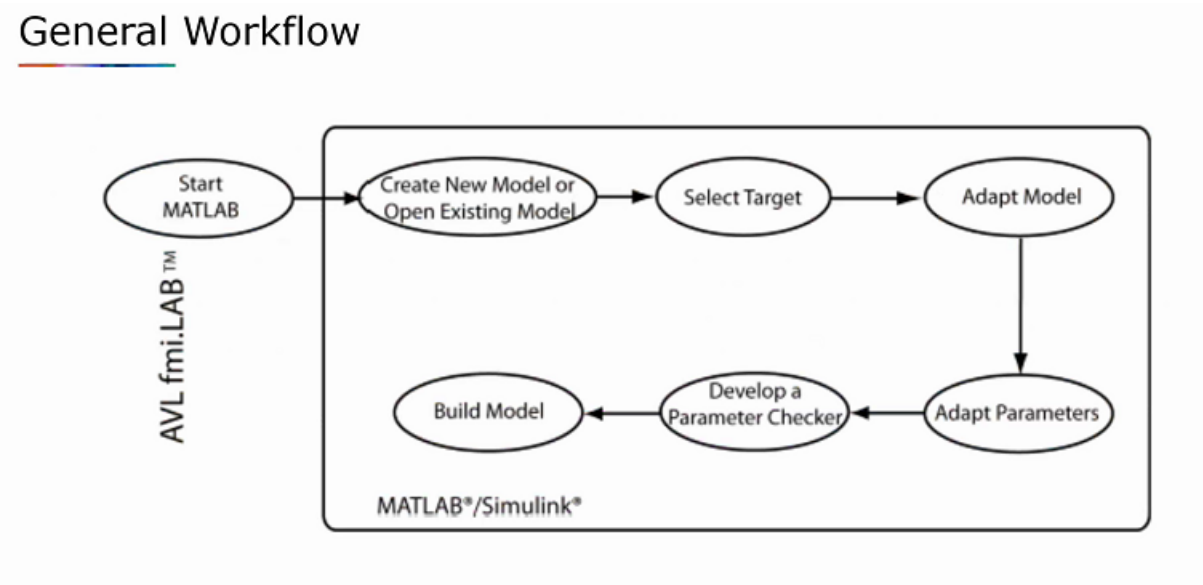
AVL fmi.LAB

The fmi.LAB is the Matlab tool used for build fmu components.

> 💡 Need to request for installation packages/licenses

Basic procedures:

/*May update this part after try out the software*/



1. Create new fmi.LAB project (default template)
2. Select Target
3. Adapat model & import other modules
4. Modify the parameters
5. Build Models → Generate fmu 2.0 file
6. In modelConnect, drag FMI Onomponent and import fmu file
7. Test Simulation
8. Connect with other components (VTD&VSM)

Day2 - VTD&ModelConnect

Most of details are covered in VTD.pptx in the attachment.

> 💡 However, we fail to launch VTD during the training. **Need to ask for technical support**

VTD

VTD directory: /home/erian/VIRES/VTD.2020

Projects directory: /home/erian/VTD.2020/Data/Projects where 00_Base_ACC is sample project.

ACC_Passenger.xml (Scenarios defination) in /home/erian/VIRES/VTD.2020/Data/Projects/00_Base_ACC/Scenarios

moduleManager.xml (Sensor defination) in /home/erian/VIRES/VTD.2020/Data/Projects/00_Base_ACC/Config/ModuleManager

More details for VTD setup are coverd in **VTD.pptx page 2-4**.

ModelConnect

Procedures:

1. Create a new modelConnect project
2. Drag the VTD/VSM/FMU from components/Module Interface in left side to project
3. Setup remote connection for VTD
4. Import ACC.vsmprj to VSM
5. Import CoordinationTransformation.fmu to FMI
6. Connect each components

For VTD and VSM, their ports are predefined in VTD terminal (Linux) and VSM R1.4.

We only can choose inputs/outputs from those pre-defined ports.

More details for VTD setup are coverd in **VTD.pptx page 5-35**.