
Working with Carnot Library

Patrick Kefer

Carnot User Meeting 2020

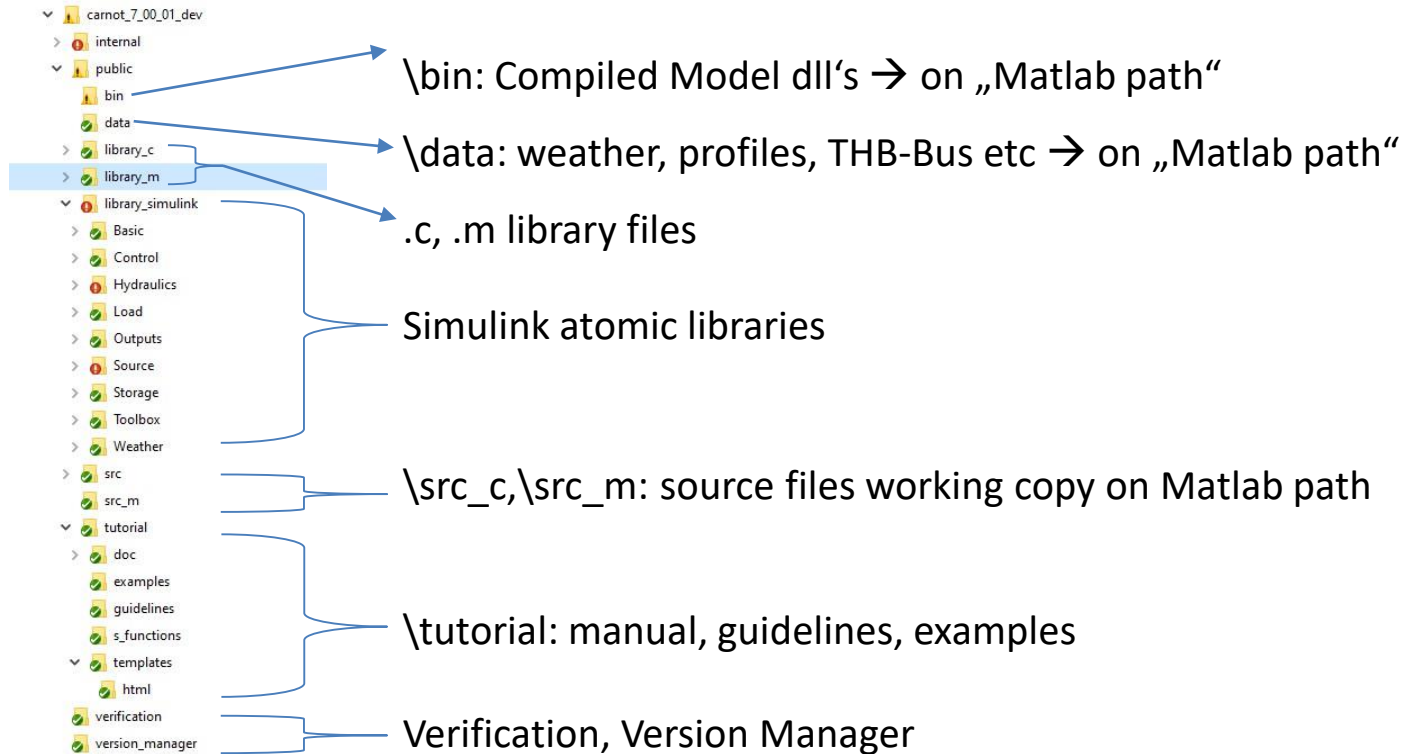
Biberach 05.03.2020

HAGENBERG | LINZ | STEYR | WELS

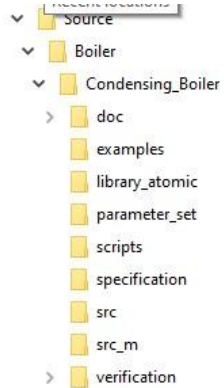


RESEARCH &
DEVELOPMENT

Carnot Folder Structure



Carnot Folder Structure



> \library_simulink: represents structure of „carnot.slx“

> every model has same folder structure

Carnot Library

CARLIB.C

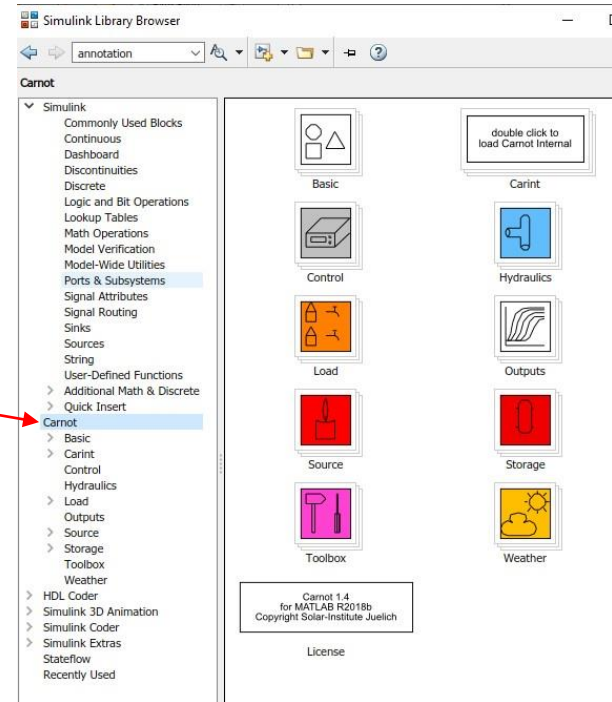
- > PATH: „carnot_root\library_c\carlib\src\ “
- > Material Properties
- > solar calculations
- > Math. Functions
- > Other utility functions

Used by a large number of .m-files and cmex s-functions

Carnot Library

CARNOT.SLX

- > PATH: „carnot_root\“
- > Simulink models from „public\library_simulink“
- > available in Simulink Browser

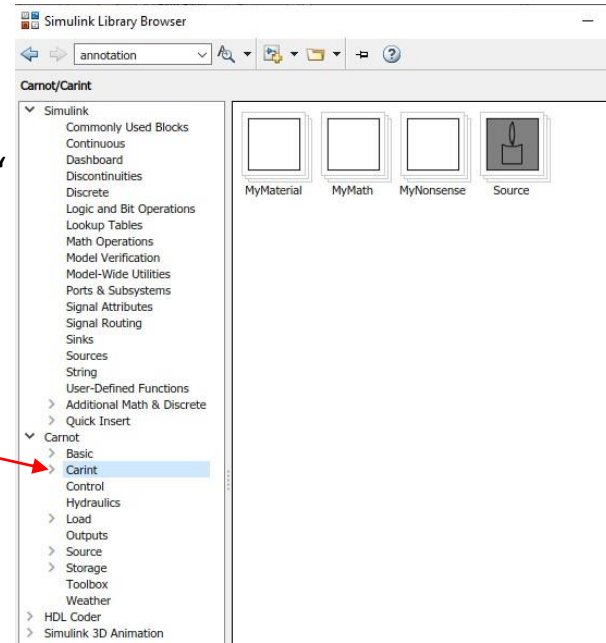


Carnot Library

CARINT.SLX

- > PATH: „carnot_root\internal\ “
- > Simulink models from „internal\library_simulink“
- > available in Simulink Browser

Carnot\Carint



Version Management

Compilation of cmex- sfunctions

„pathCarnot\version_manager“

MakeMEX.m

- compile all .c source files
- copy .mexw64 files to folder „carnot\public\bin“
- copy source files to folder „carnot\public\src“
- needs C-Compiler (MINGW64 Addon available)

Version Management

Compilation of cmex- sfunctions

„pathCarnot\version_manager“

MakeMEX_CleanUp.m

- Works like MakeMex
- but*
- **deletes source files in model folder !!!**

Version Management – Manual Creation of Carnot.slx

- Models should be exact copy of atomic-libraries
- Modelname == folder_name

IF NOT: VersionManagement = big mess

- wrong blocknames
 - Version Manager scripts will create bad links or won't run
- hard to keep track on changes
 - changes have to be applied twice – carnot.slx + atomic library
 - + block arrangement a bit „prettier“

Version Management – Manual Creation of Carnot.slx

- > Open carnot.slx
- > Create\Change Subsystem
- > Copy „Carnot-Blocks“ from Simulink Browser at will
 - break unnecessary library links
 - Blocks other than Carnot Library Blocks
- > Save library
- > Update toolbox cash
- > Update public\internal\library_simulink folder !

Version Manager – „pathCarnot\version_manager“

CreateCarnotMDL.m

- automatic creation of „carnot.slx“ library

CreateCarintMDL.m

- automatic creation of internal library „Carint.slx“
- > same approach for carnot and carint
- > check folder-names and model-names
- > only models with status == done are created
 - „public/library_simulink/status.txt“
 - „internal/library_simulink/status.txt“

Version Manager – „pathCarnot\version_manager“

CopyRemainingFiles.m

- > Copy files from block and function folders to release folders
- > help, m-files, doc etc.

CreateMFileHelp.m

- > Create help for m-files using publisher
- > Every m-file should contain a header compatible with matlab publisher

Version Manager – „pathCarnot\version_manager“

CheckForBadBlocks.m

- *search for unresolved links in carnot library*
- *useful when subsystem arrangement changes*

CheckUpgradeAdvisor.m

- *create Upgrade Report for new Matlab Release*
- *takes a huge amount of time and memory (at least in R2018b)*