



Question:

Which products of MathWorks® have to be installed to use Simulink® models with LABCAR-OPERATOR?



Answer:

The minimum required installation of MATLAB® and Simulink® for LABCAR-OPERATOR is:

- MATLAB®
- Simulink®
- Simulink® Coder™ (formerly Real Time Workshop)

The information of current installed MathWorks® products on a system could be checked with the Matlab command "ver".

See example below:

```
>>ver
-----
MATLAB Version 7.13.0.564 (R2011b)
MATLAB License Number: xxxxxx
Operating System: Microsoft Windows 7 Version 6.1 (Build 7601: Service Pack 1)

Java VM Version: Java 1.6.0_17-b04 with Sun Microsystems Inc. Java HotSpot(TM)
Client VM mixed mode

MATLAB                Version 7.13      (R2011b)  -- required
Simulink              Version 7.8      (R2011b)  -- required
Fixed-Point Toolbox   Version 3.4      (R2011b)  -- optional
MATLAB Coder          Version 2.1      (R2011b)  -- optional
Neural Network Toolbox Version 7.0.2     (R2011b)  -- optional
Simulink Coder        Version 8.1      (R2011b)  -- required
Stateflow             Version 7.8      (R2011b)  -- optional
```



Additional information:

MATLAB® Coder™ is not required, except in the case that the models used in LABCAR implement code algorithms that are written in MATLAB® and called using the MATLAB® Function block.

The MATLAB® Function block for simulation and code generation allows to add MATLAB® algorithms written in the MATLAB® subset for integrating MATLAB® code into Simulink® models.

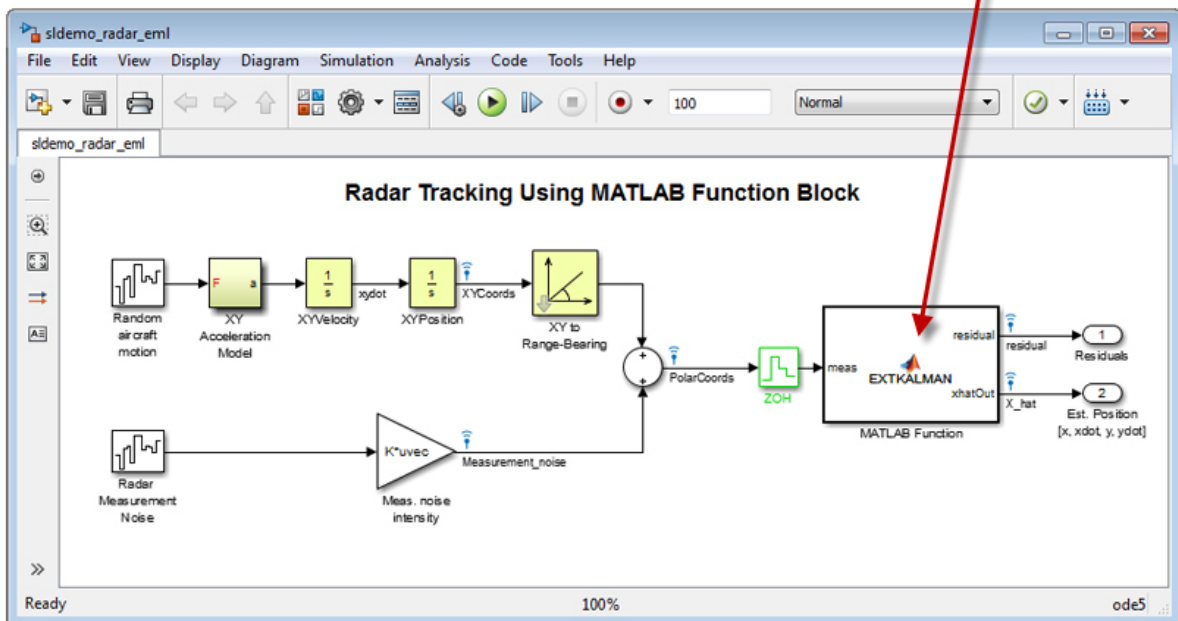
A basic example is depicted next.

The Simulink® model in this example is taken from the Simulink® demo examples and uses a MATLAB® function Block, which algorithm (a Kalman filter) is written in MATLAB® subset.

```

Block: sldemo_radar_eml/MATLAB Function
EDITOR VIEW
+ Find Files Insert fx fi
New Open Save Compare Comment % % %
Print Indent Go To Breakpoints Run Stop Build Model SIMULINK
FILE EDIT NAVIGATE BREAKPOINTS RUN

28 % Radar update time deltat is inherited from model workspace
29
30 % 1. Compute Phi, Q, and R
31 Phi = [1 deltat 0 0; 0 1 0 0; 0 0 1 deltat; 0 0 0 1];
32 Q = diag([0 .005 0 .005]);
33 R = diag([300^2 0.001^2]);
34
35 % 2. Propagate the covariance matrix:
36 P = Phi*P*Phi' + Q;
37
38 % 3. Propagate the track estimate::
39 xhat = Phi*xhat;
40
41 % 4 a). Compute observation estimates:
42 Rangehat = sqrt(xhat(1)^2+xhat(3)^2);
43 Bearinghat = atan2(xhat(3),xhat(1));
44
45 % 4 b). Compute observation vector y and linearized measurement m
46 yhat = [Rangehat;
47         Bearinghat];
48 M = [ cos(Bearinghat)      0 sin(Bearinghat)      0
49       -sin(Bearinghat)/Rangehat 0 cos(Bearinghat)/Rangehat 0 ];
50
51 % 4 c). Compute residual (Estimation Error)
52 residual = meas - yhat;
    
```





In case of further questions:

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Here you can find all information: <http://www.etas.com/en/hotlines.php>

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