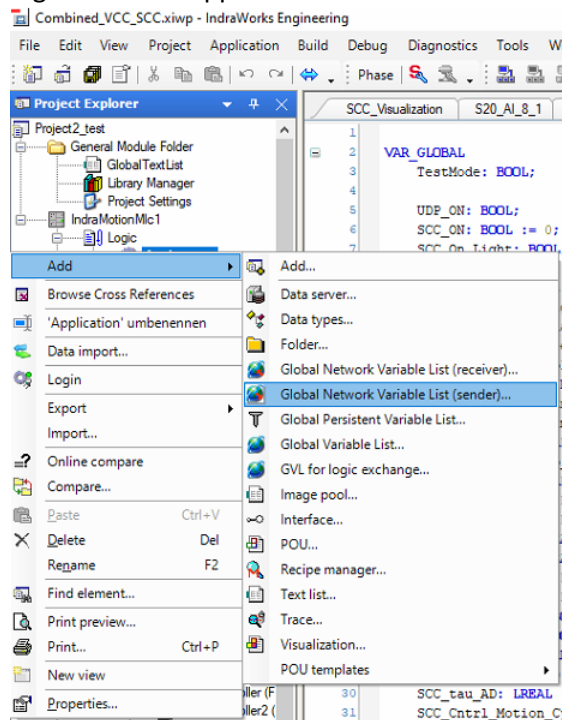# Simulink RT XM22 UDP Interface Guidance

Daniel Hagen

Rexroth XM22 (PLC):

1. Right click on" Application" and add:

2. Select network type UDP, assign task, select transmit on event and assign a trigger variable (I recommend to do this so the PLC is not sending data all the time, but only when needed, e.g., when generated PLC time is started → enable "UDP_ON" signal), alternatively select "Cyclic transmission Interval". Check Network type settings according to:
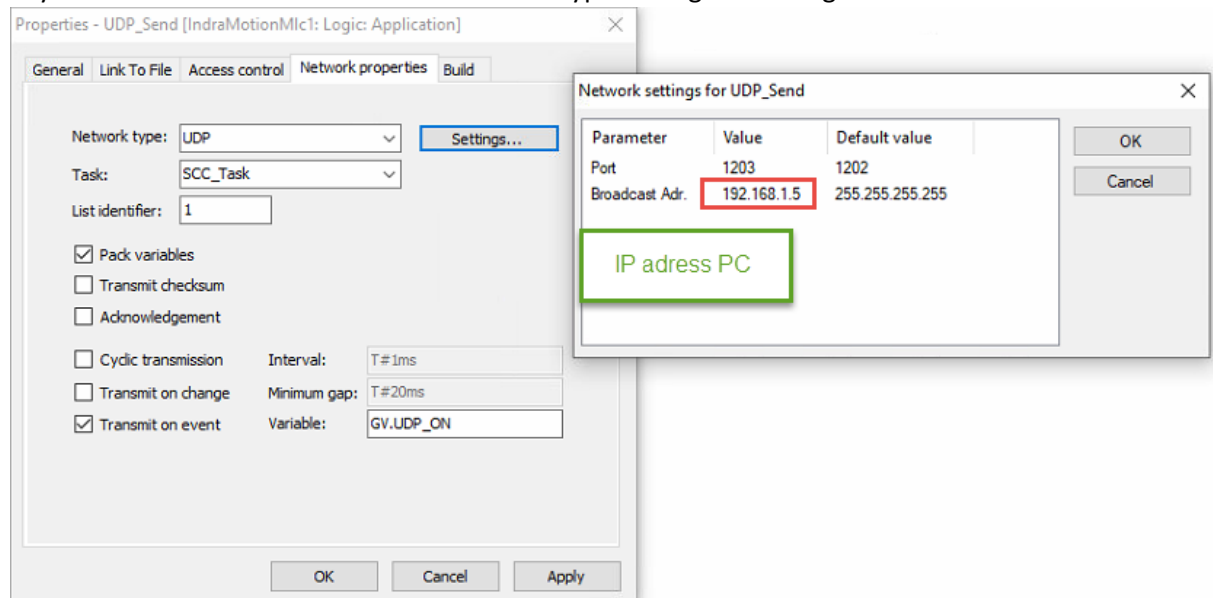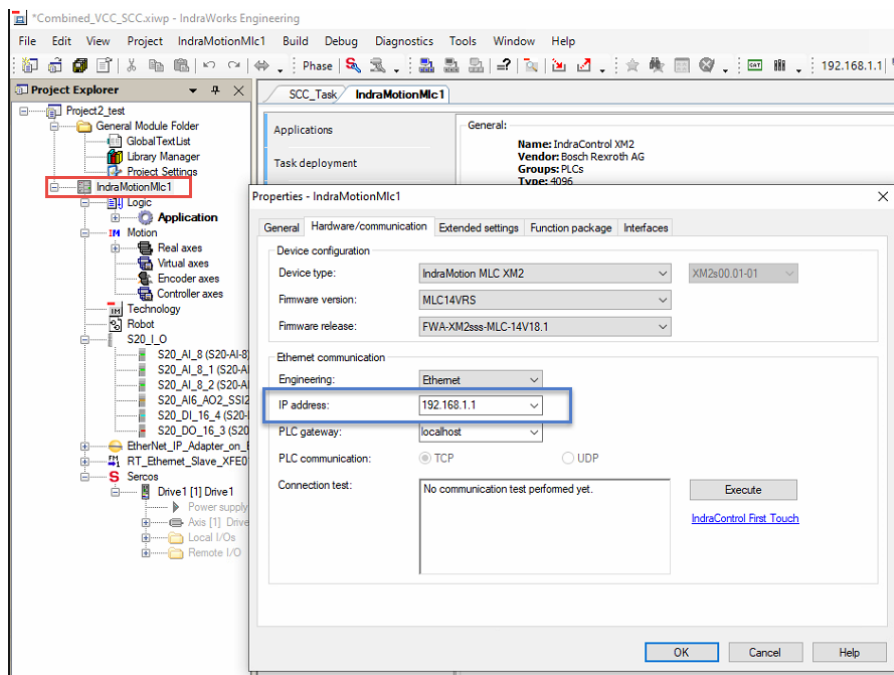

The chosen sample time should be greater or equal to the cyclic time of the task:
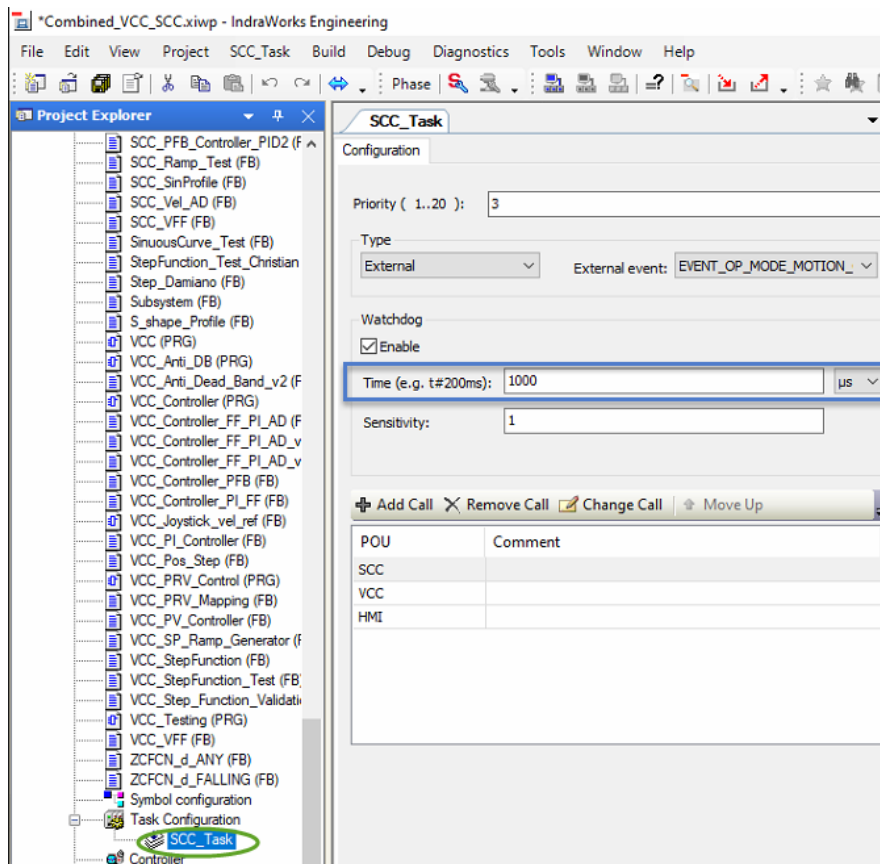
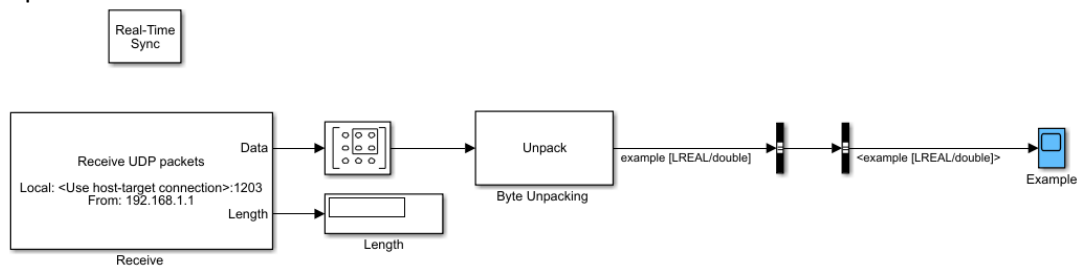3. Add signal to be sent and chose datatype (e.g., LREAL, REAL, BOOL etc.).
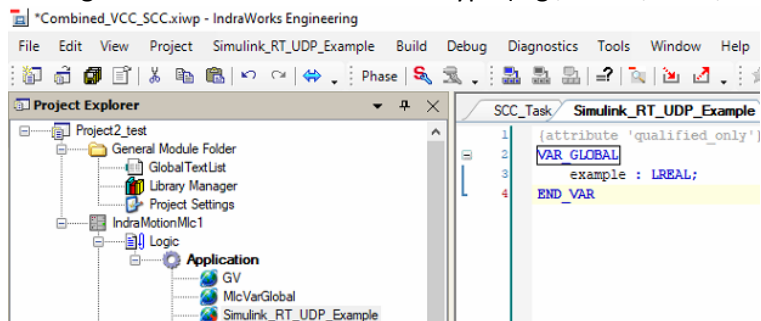
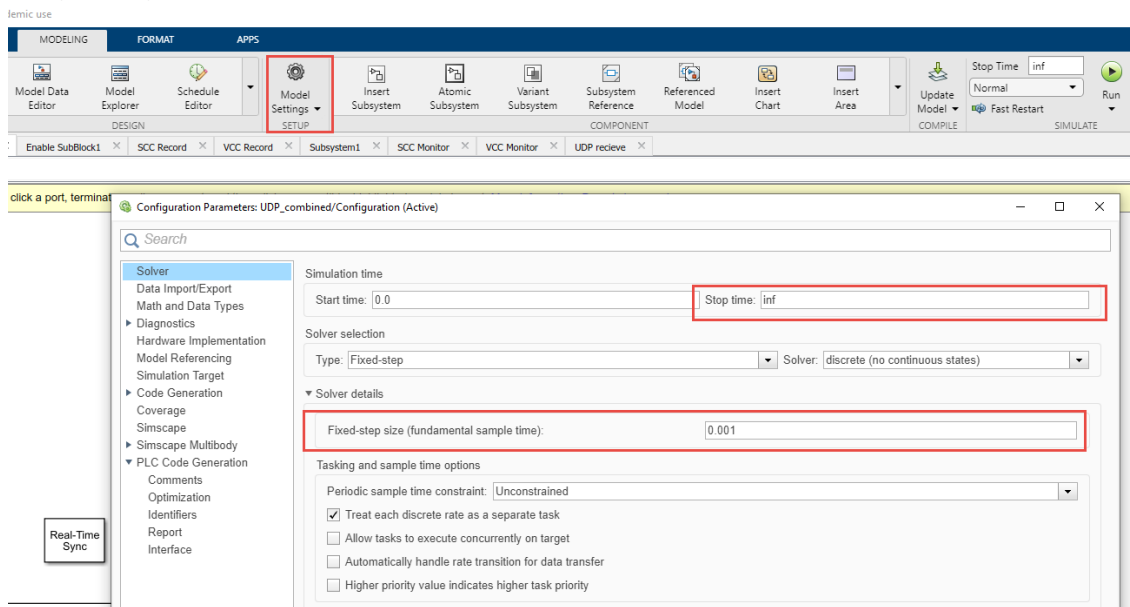4. Identify the IP address of the PLC → right click on the "IndraMotion":

MATLAB/Simulink:

1. Install Simulink RT kernel for current Matlab version:
   https://se.mathworks.com/help/sldrt/ug/real-time-windows-target-kernel.html
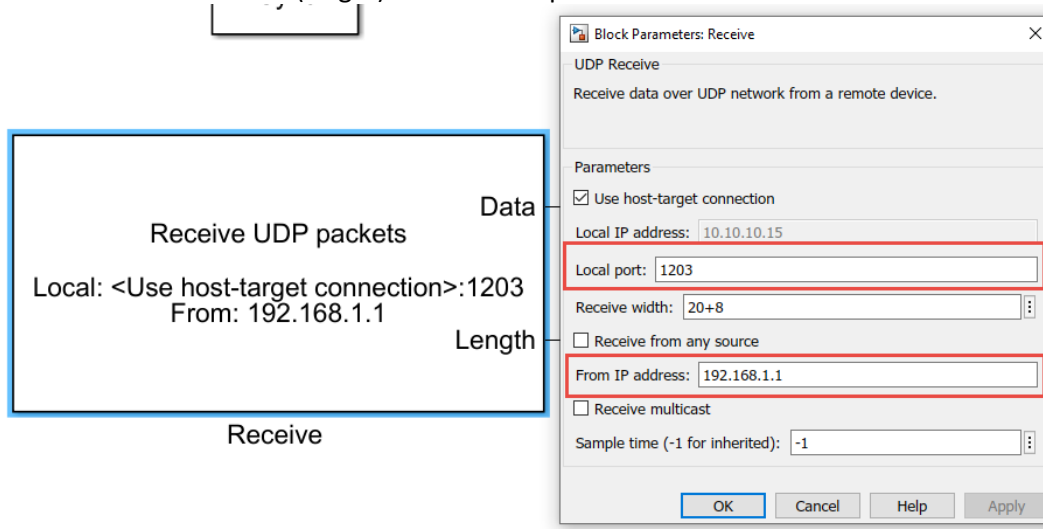2. Open Simulink file

3. Model settings → select fixed step time and sample time same as for the Network Variable List (sender) chosen above:
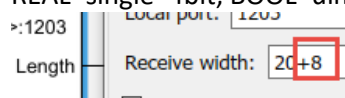
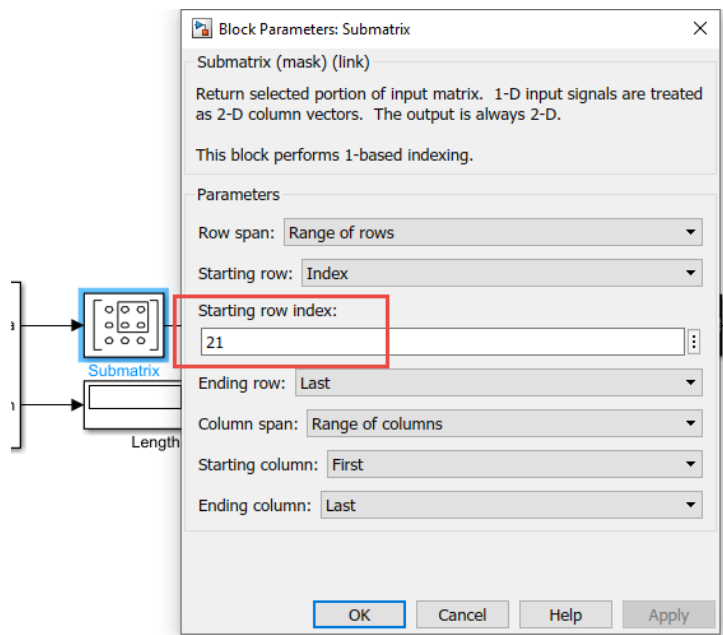4. Increase the maximum missed ticks to avoid errors:
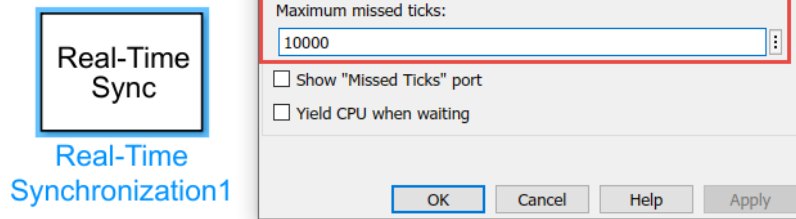
5. Add IP address from PLC (target) and set local port to "1203".
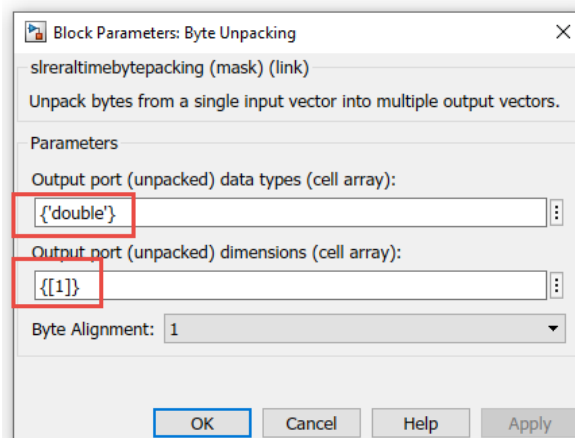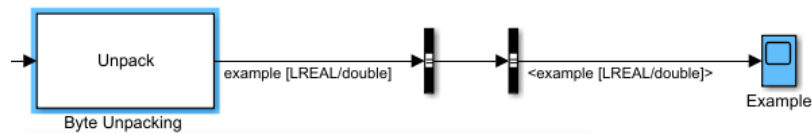

6. Add width of received signals, the first 20 is automatically occupied by the Network Variable List (sender), the +8 represent the 8bit LREAL from the example signal (LREAL=double=8bit, REAL=single=4bit, BOOL=uint8=1bit).:
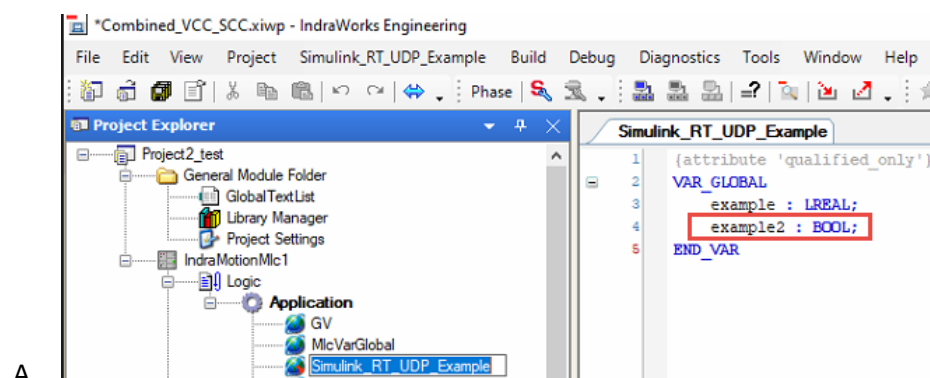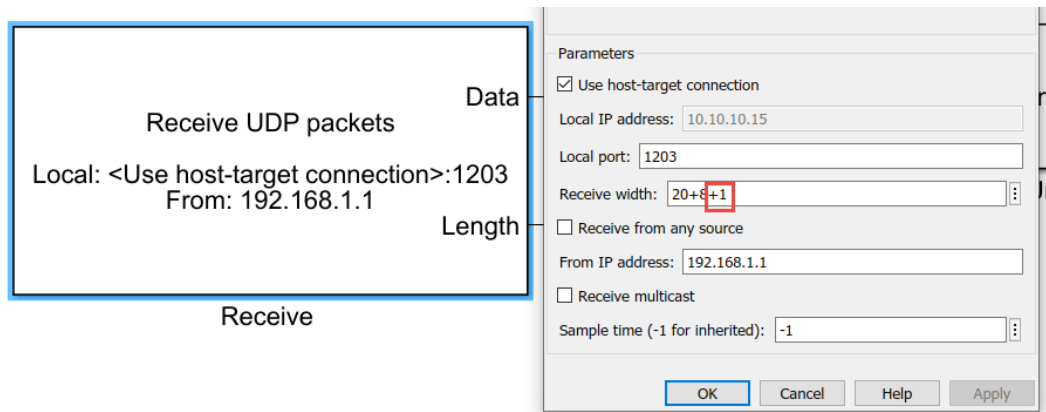

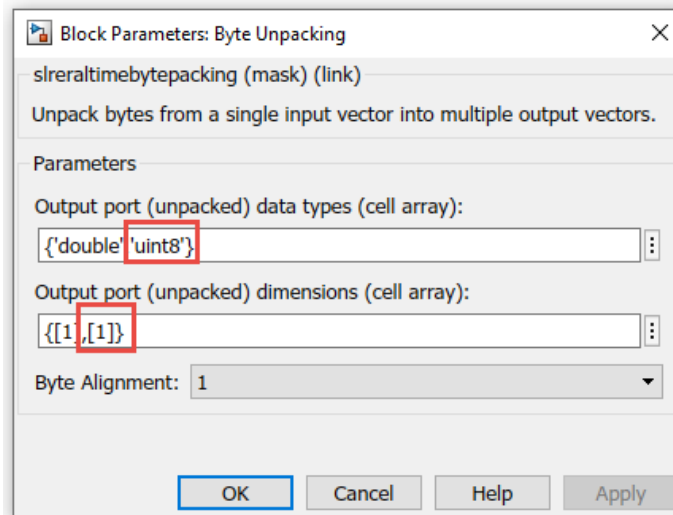7. Select the "Starting row index":
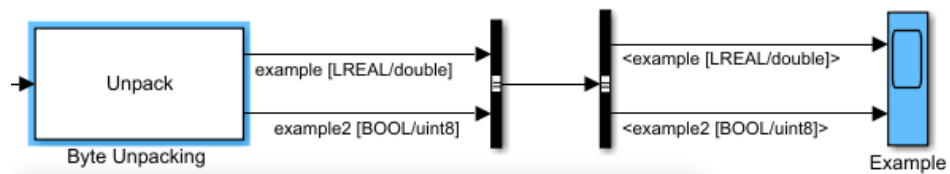
8. Unpack the signal(s):

9. Example of adding more signals:

A.

Receive UDP packets

Local: <Use host-target connection>:1203
From: 192.168.1.1

Data

Length

Receive

Parameters

☑ Use host-target connection

Local IP address: 10.10.10.15

Local port: 1203

Receive width: 20+8+1

☐ Receive from any source

From IP address: 192.168.1.1

☐ Receive multicast

Sample time (-1 for inherited): -1

OK   Cancel   Help   Apply

B.

Unpack

example [LREAL/double]

example2 [BOOL/uint8]

<example [LREAL/double]>

<example2 [BOOL/uint8]>

Byte Unpacking

Example

Block Parameters: Byte Unpacking

slrealtimebytepacking (mask) (link)

Unpack bytes from a single input vector into multiple output vectors.

Parameters

Output port (unpacked) data types (cell array):

{'double' 'uint8'}

Output port (unpacked) dimensions (cell array):

{[1],[1]}

Byte Alignment: 1

OK   Cancel   Help   Apply

C.