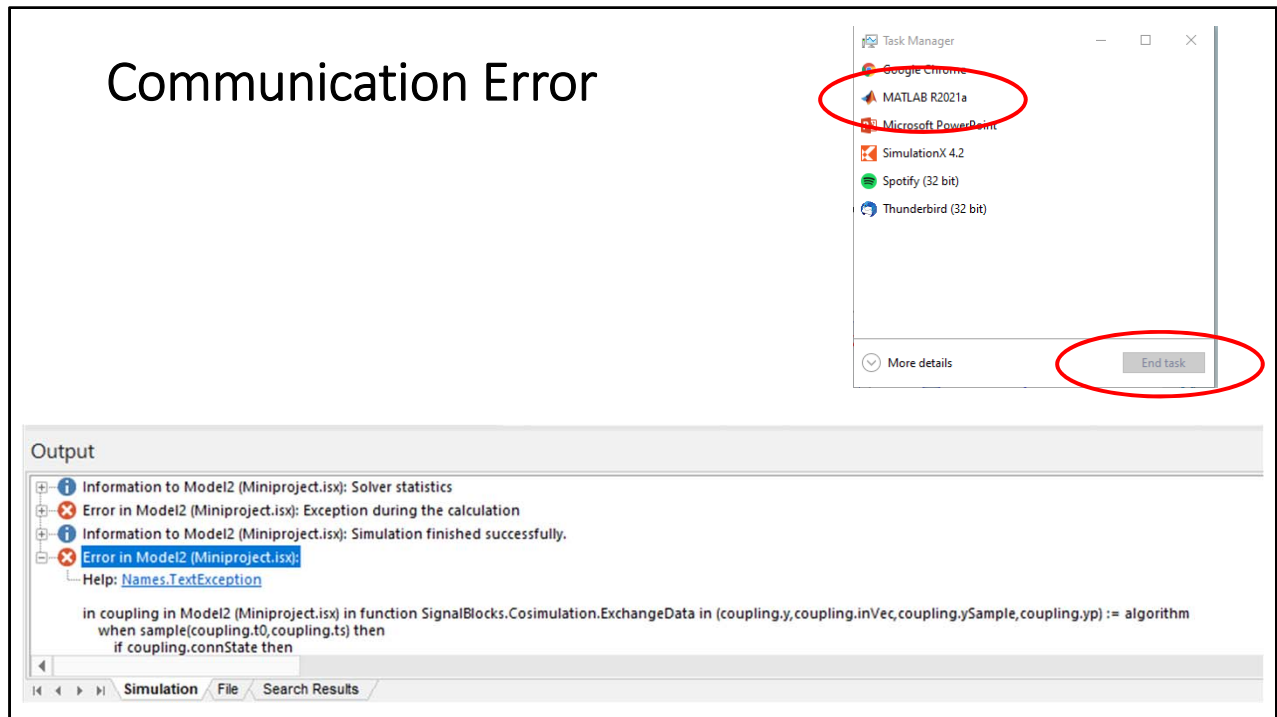


# Co-Simulation Help

Simulink & SimulationX

These instructions help debug communication problems between Simulink & SimulationX.

Problems may re-occur any time SimulationX is updated.



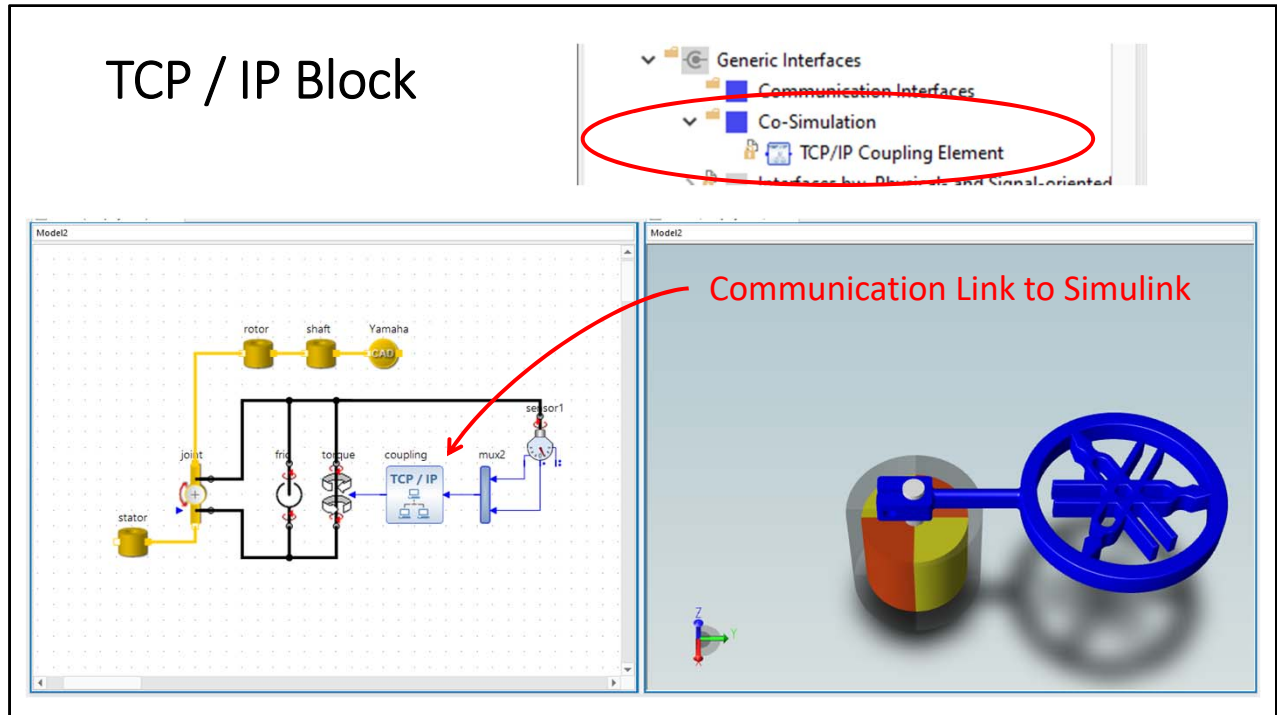
## Error

- Appears in SimulationX Output Window.
- Simulink hangs.
- No way to stop or interrupt Simulink.
- Must kill MATLAB task from Windows Task Manager

NEVER RUN CO-SIMULATION WITH UNSAVED MATLAB CHANGES  
IF SIMULINK HANGS, YOU MUST KILL MATLAB TASK

Simulation must complete to exit gracefully from Simulink, once you hit "Run".

## TCP / IP Block



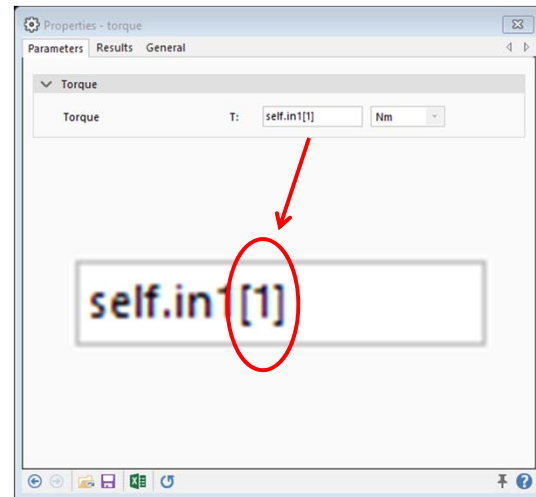
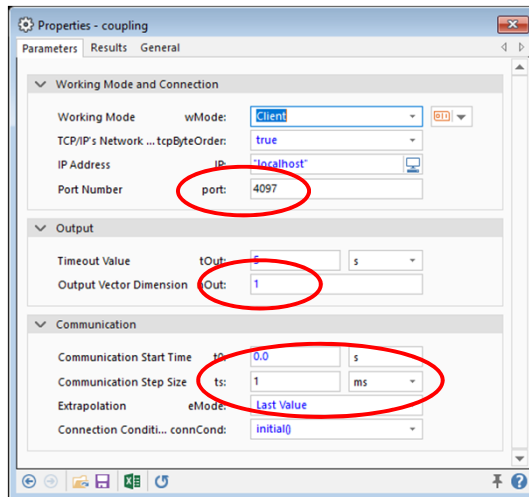
### TCP / IP

- Built into SimulationX.
- Automatically updated when SimulationX updated.

### Typical Problem

- This block communicates with the Simulink block.
- When SimulationX is updated, this block may become incompatible with the Simulink block you are using.
- Usually, this block is not causing your problem.
- Get new copy from SimulationX menu only as a LAST RESORT.

## Settings



### TCP / IP Coupling block

- Port **MUST** match port in Simulink block.
- Default value is not correct.
- Communication Step Size **MUST** match Simulink block.
- Make sure **PHYSICAL UNITS** are correct.

### Torque block

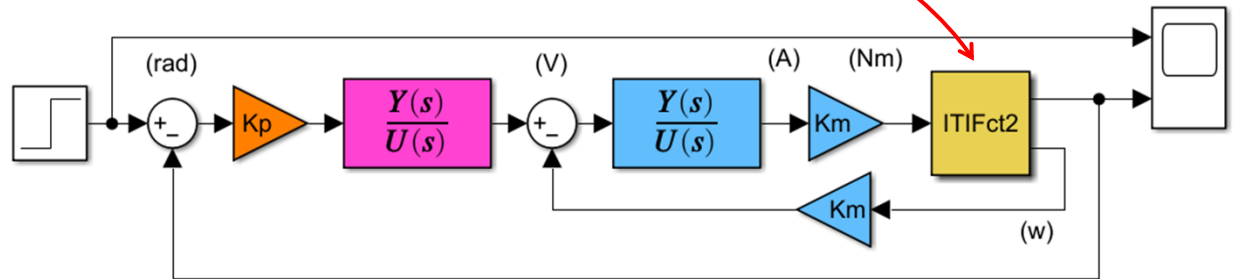
- Receives the Output **VECTOR** from TCP / IP.
- Must reference element number even if **nOut = 1**.
- TCP/IP never outputs a scalar.

## ITIFct2 Block

» This PC » Local Disk (C:) » Users » Public » Public Documents » SimulationX 4.2 » Samples » InterfacesGeneral » CoSimulation » Coupling » matlab » r2006

Simulink Files: ITIFct2.mexw32 ITIFct2.mexw64

Communication Link to SimulationX



### ITIFct2

- Save a copy to a directory in your **MATLAB SEARCH PATH**
- It's dangerous to add the directory shown to your Matlab Search Path
- This directory may change when SimulationX is updated

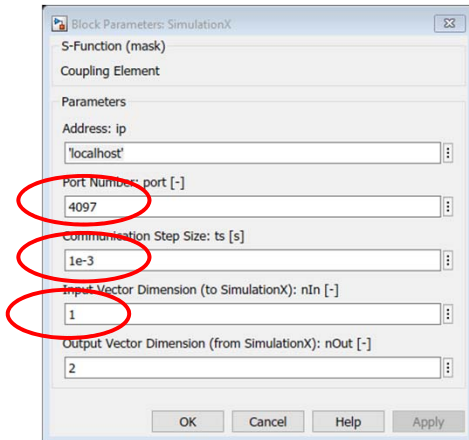
### Communication Block

- Open Simulink model in the directory shown.
- Copy ITIFct2 block from this model.

### Typical Problem

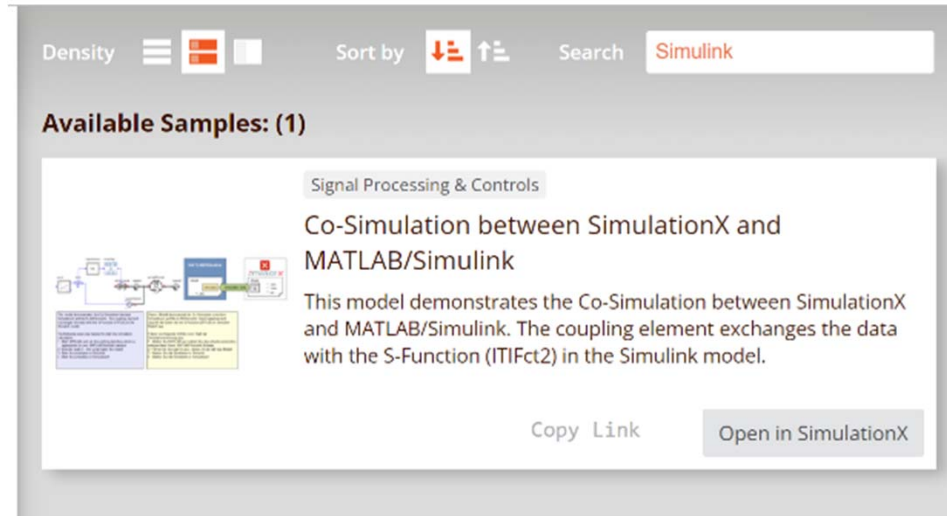
- This block communicates with the SimulationX block.
- When SimulationX is updated, the files are updated but you are using older copies.
- Put a fresh copy in the directory that is in your MATLAB search path.
- Usually, you do not need a fresh copy of the block from the Simulink model.
- Update the block as a LAST RESORT.

## Settings



### **TCP / IP Coupling block**

- Port MUST match port in SimulationX block.
- Default value is usually correct.
- Communication Step Size MUST match SimulationX block.
- Reducing this value can make the simulation run SLOW.
- PHYSICAL UNITS are seconds. You cannot change this.
- Input Vector dimensions MUST match SimulationX block Output Vector.



**If you cannot find the tutorial files, search for it.**

- **File** tab
- **Samples**
- Search for **Simulink** or **Co-Simulation**
- The directory may change in future SimulationX releases.