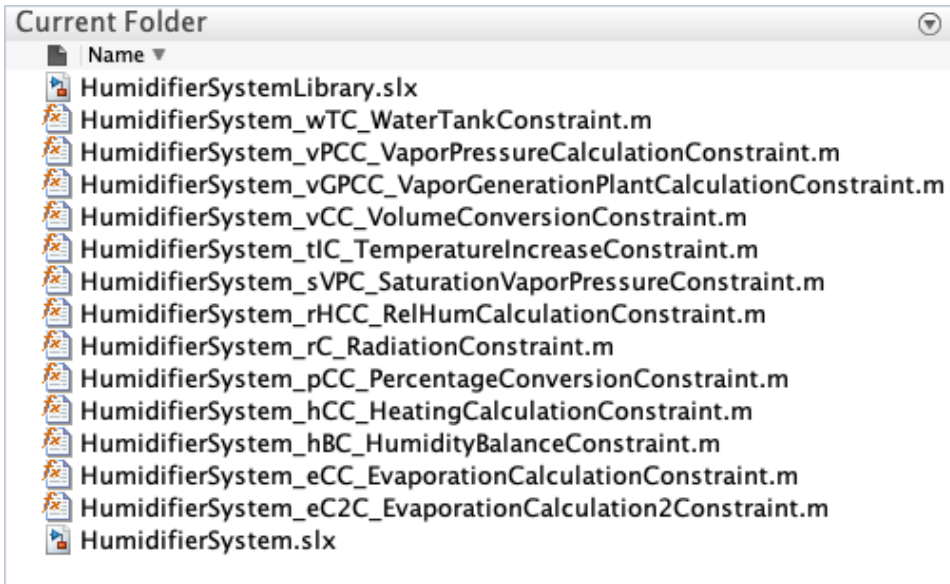


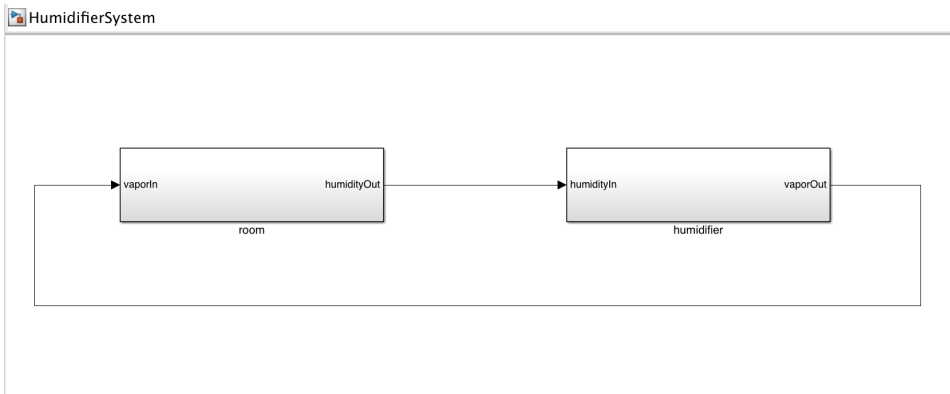
Exporting Humidifier example to Simulink model

To generate a Simulink model directly from the modeling tool

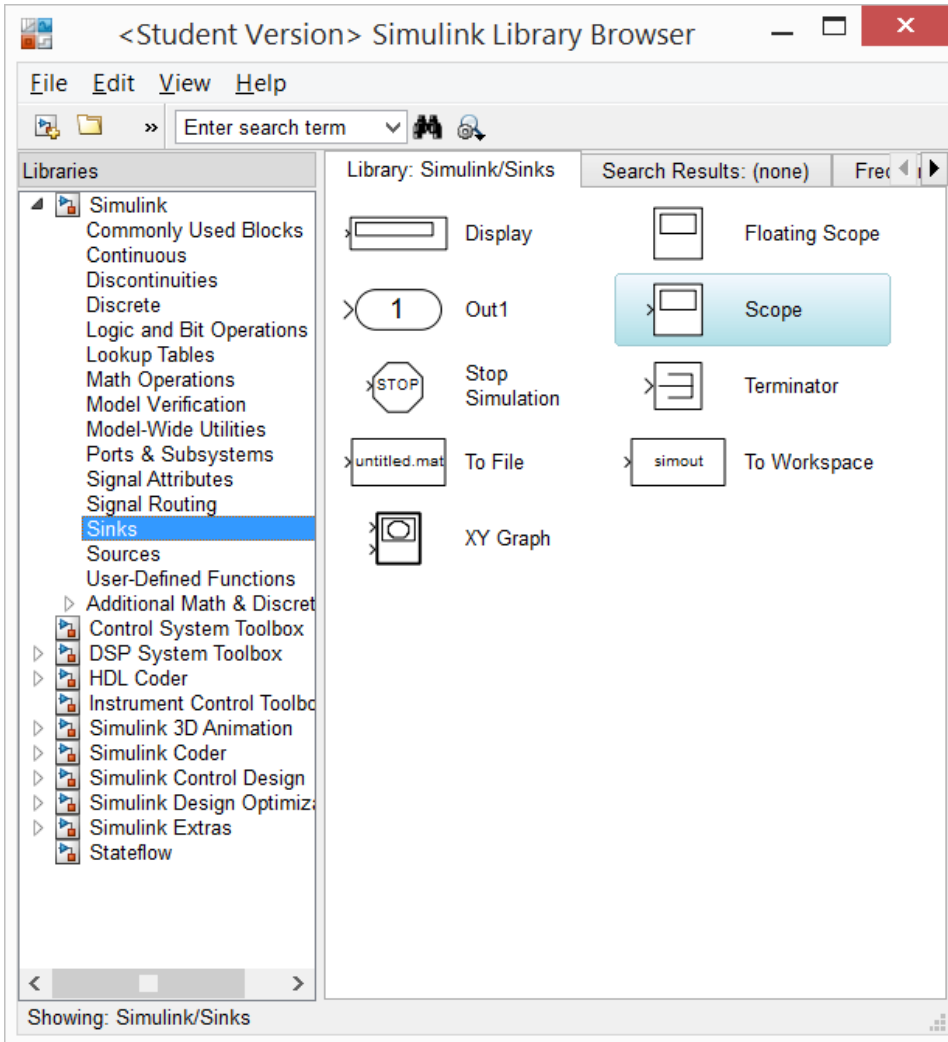
1. Right-click the *Block HumidifierSystem* and select **Tools > Export to Simulink**.
2. Set the options listed below and click **OK**:
 - **Format**: XML (.sdl)
 - **S-Function or Simscape**: S-Function version 2
3. Launch Matlab with Simulink and Stateflow extensions.
4. In Matlab's **Current Directory** navigation bar, search for the file directory where the Simulink files (as well as the SysML files) are saved, and set it as the current directory. The **Current Folder** panel should display generated Simulink (.slx) files.



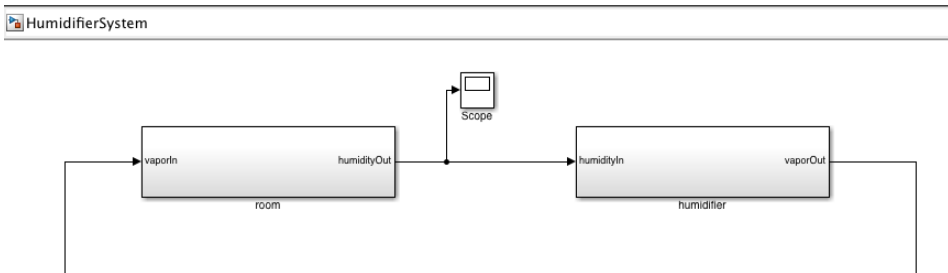
5. In the **Current Folder** panel, double-click the file named **HumidifierSystem.slx**. The model will open up in a Simulink window.



- Open the **Library Browser** either by using the **4-block** icon or by going to **Tools > Library Browser**. Find and click on **Sinks** among the list in the **Libraries** panel, which will be categorized under **Simulink**.

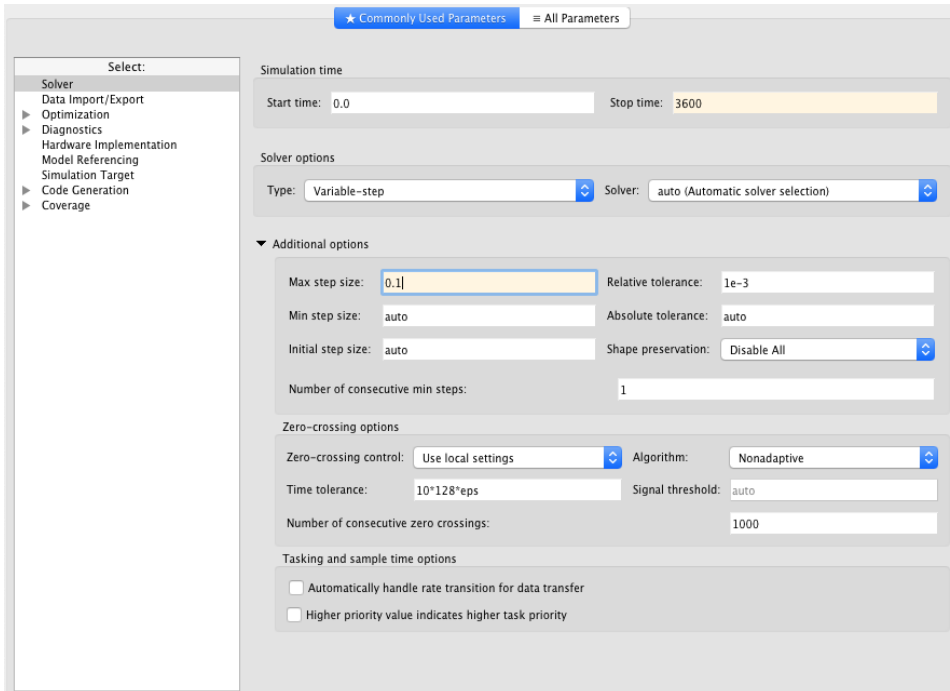


- Pull-and-drag the **Scope** block from the **Sinks** library list into the **HumidifierSystem** Simulink model. Attach a signal line segment from the **Scope** port onto the signal line that connects the *humidity-out* port of the room block to the *humidity-in* port of the humidifier block.



- Go to **Simulation > Model Configuration Settings**. This allows selecting the types of solver and the runtime of the simulation. Select a **Start Time** of **0.0**, and a **Stop Time** of **3600**. Under **Solver Options**, select the solver **Type** to **Variable-step** (or any other desirable solver that is

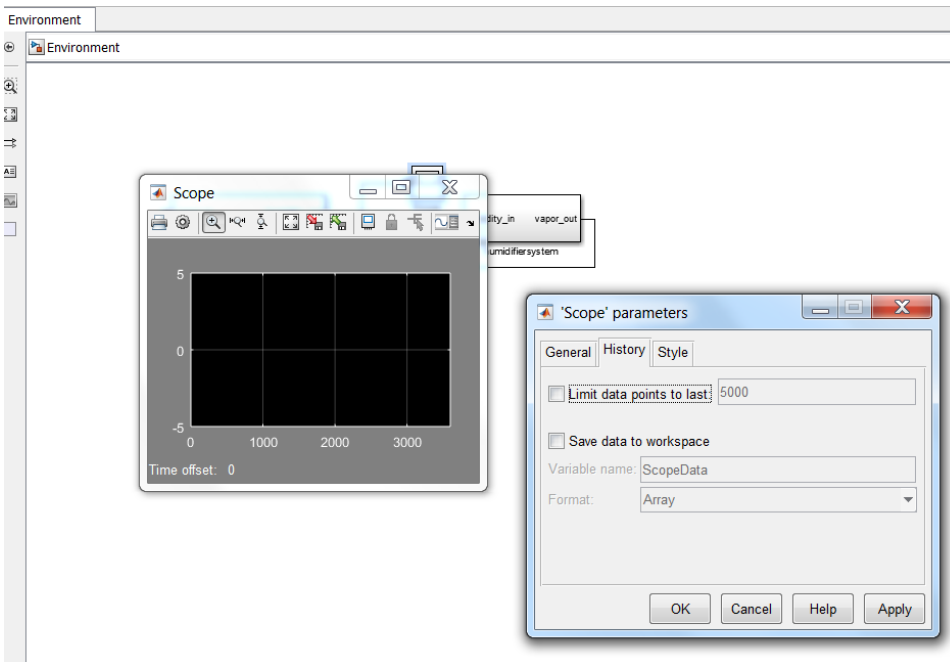
suitable) and change the **Max step size** to **0.1**. Press **Apply**, then press **OK**.



The image shows the 'Commonly Used Parameters' tab of the MATLAB Solver Configuration dialog. On the left is a 'Select:' pane with a tree view containing: Solver, Data Import/Export, Optimization, Diagnostics, Hardware Implementation, Model Referencing, Simulation Target, Code Generation, and Coverage. The main area is divided into several sections:

- Simulation time:** Start time: 0.0, Stop time: 3600.
- Solver options:** Type: Variable-step, Solver: auto (Automatic solver selection).
- Additional options:**
 - Max step size: 0.1
 - Relative tolerance: 1e-3
 - Min step size: auto
 - Absolute tolerance: auto
 - Initial step size: auto
 - Shape preservation: Disable All
 - Number of consecutive min steps: 1
- Zero-crossing options:**
 - Zero-crossing control: Use local settings
 - Algorithm: Nonadaptive
 - Time tolerance: 10*128*eps
 - Signal threshold: auto
 - Number of consecutive zero crossings: 1000
- Tasking and sample time options:**
 - ☐ Automatically handle rate transition for data transfer
 - ☐ Higher priority value indicates higher task priority

9. Double-click the **Scope** block in the model. An empty (black) plot will show up. Press the **'Scope' parameters** button (the gear icon above the empty plot). A **'Scope' parameters** dialogue box will pop up. Go to the **History** tab and uncheck the option box **Limit data points to last**. Press **Apply**, and then **OK**.



10. Go to **Simulation > Run**. Double-click on the **Scope** block to see the simulation results.

