How to export MapleSim models to Simulink

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1) Prepare MapleSim model

Variables are declared in here (see next slide)

Input: Torque

Output: angular velocity z-component

I/O are selected and properly “arranged”

Parameters of interest are declared as variables
1a) declare variables
2) Create subsystem
3) Export to Simulink
3) Export to Simulink

Select appropriate subsystem
3) Export to Simulink

### Step 2: Inputs/Outputs and Parameter Management

#### Input Ports:

<table>
<thead>
<tr>
<th>Input Variables</th>
<th>Port Grouping Name</th>
<th>Change Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Main.sub1_1.u1'(t)</td>
<td>&quot;inputs&quot;</td>
<td>1</td>
</tr>
</tbody>
</table>

- **Group all inputs into a single vector**
- **Add additional inputs for required input variable derivatives**

#### Output Ports:

<table>
<thead>
<tr>
<th>Output Variables</th>
<th>Port Grouping Name</th>
<th>Change Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Main.sub1_1.y1[1]'(t)</td>
<td>&quot;outputs&quot;</td>
<td>1</td>
</tr>
</tbody>
</table>

- **Group all outputs into a single vector**
- **Add an additional output port for subsystem state variables**

#### Parameters:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Value</th>
<th>Export</th>
<th>Updated Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>I3</td>
<td>1.</td>
<td>&quot;x&quot;</td>
<td></td>
</tr>
<tr>
<td>mass</td>
<td>1.</td>
<td>&quot;x&quot;</td>
<td></td>
</tr>
</tbody>
</table>

- **Group all parameters into a single vector**
- **Generate m-script for assigning parameters**

Type anything in these cells to select the parameter.
3) Export to Simulink

**Step 4: Generate C Code**

Target directory:

```
C:\Users\Andrew
```

Block Name:

```
sub1_1
```

[Generate S-Function Code (no Compile)] [Generate and Compile S-Function]
4) Compile in Matlab

Note: in order to carry out this step you need to have a C++ compiler installed. If you don’t have one you can download Microsoft’s VC++ compiler for free!
5) Finished!