

Quick Node Red Dashboard Write-Up:
David Anderson - July 7, 2023

- Images of dashboard and flow on 2nd page, JSON file of Node-Red on last page
- This node red dashboard pulls in two user inputs (sliders on dashboard), and creates a JSON file which is inputted to the FMU. The FMU sends another JSON file back, with the corresponding outputs from the simulation.
- The sliders will be replaced with drum positions, and the outputs will be desired drum position, thrust, and specific impulse.

Pulling in JSON file:

1. MQTT
2. Json node
3. JSON Decoder function
 - `var output_1 = {"payload":msg.payload.output_dollars.toString().slice(0,10)};`
 - `var output_2 = {"payload":msg.payload.output_dollars_2.toString().slice(0,10)};`
 - `return [output_1, output_2];`
4. Graphs and printing values

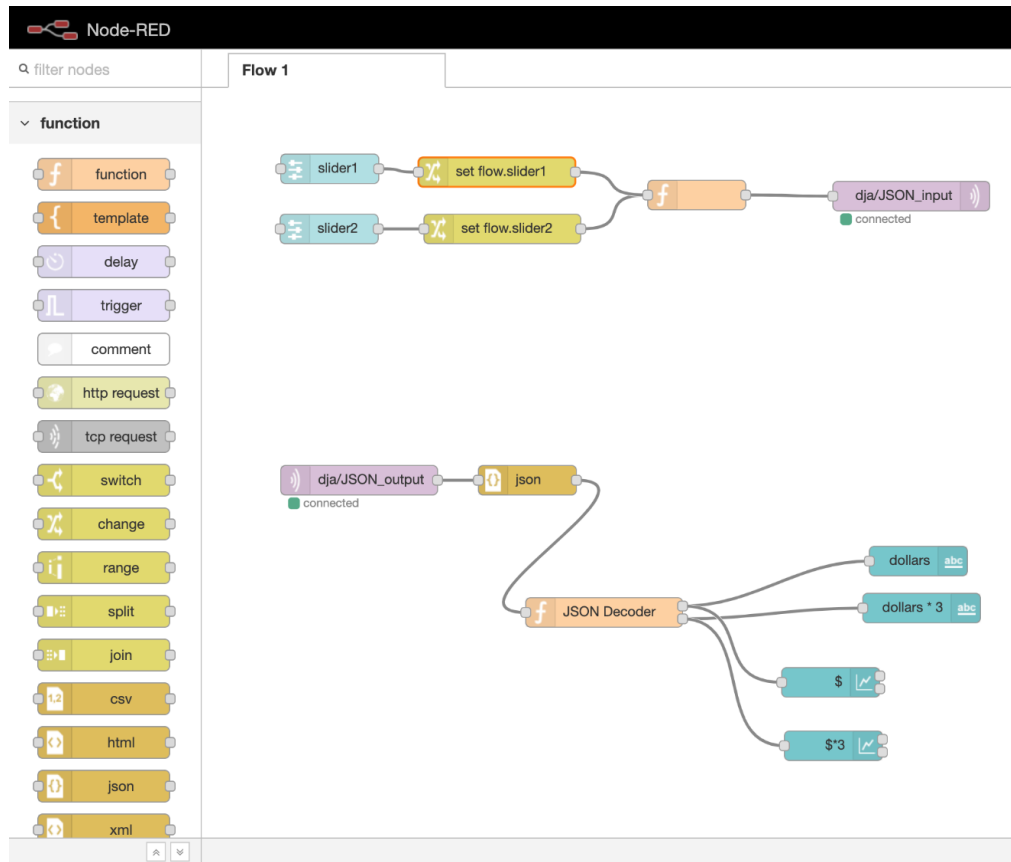
Generating JSON values from sliders:

1. Data gets sent from slider to function via 'change function', rules set below

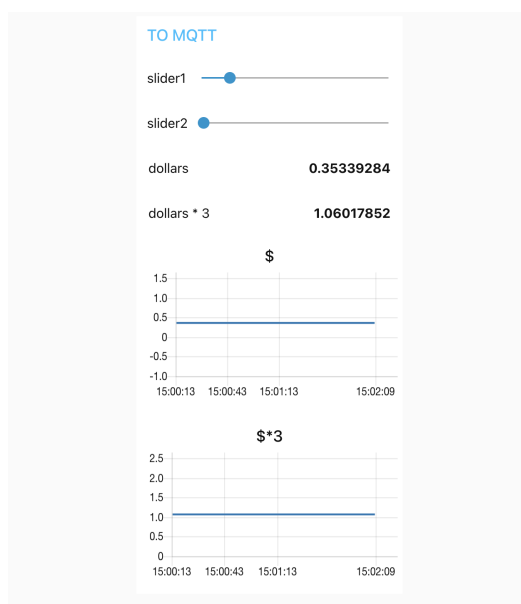


- a.
2. Change functions recombine in the main (JSON formatting) function with the code below
 - `var slider1 = flow.get("slider1");`
 - `var slider2 = flow.get("slider2");`
 -
 - `var json = {`
 - `drum1: slider1,`
 - `drum2: slider2`
 - `};`
 -
 - `msg.payload = JSON.stringify(json);`
 -
 - `return msg;`
 3. Output of function is sent to MQTT

Image of node-red flow:



Node-red dashboard:



Below this is the JSON format of the exported Node-Red Dashboard:

```
[{"id":"50a8e0fb.a97ee","type":"mqtt
out","z":"a5469932.810828","name":"","topic":"dja/JSON_input","qos":"","retain":"","broker":"2dfd
7efa.6d18b2","x":907.2221755981445,"y":636.6666831970215,"wires":[{}],{"id":"8e543bfb.5579a
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","order":0,"width":0,"height":0,"passthru":true,"topic":"","min":0,"max":180,"step":1,"x":313.888
888888888886,"y":608.8888888888889,"wires":[["696d00c2.1c65e"]]},{"id":"e7bb0f1b.02d19","typ
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28125,"y":670,"wires":[["162c2c88.df5da3"]]},{"id":"ed448f7e.750a6","type":"mqtt
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n","z":"a5469932.810828","name":"JSON Decoder","func":"var output_1 =
{\"payload\":msg.payload.output_dollars.toString().slice(0,10)};\nvar output_2 =
{\"payload\":msg.payload.output_dollars_2.toString().slice(0,10)};\nreturn [output_1,
output_2];","outputs":2,"noerr":0,"x":593.8888778686523,"y":1060.0000095367432,"wires":[["6
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s *
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N Encoder","func":"var slider1 = flow.get(\"slider1\");\nvar slider2 = flow.get(\"slider2\");\n\nvar
json = {\n  drum1: slider1,\n  drum2: slider2\n};\n\nmsg.payload =
JSON.stringify(json);\n\nreturn
msg;","outputs":1,"noerr":0,"x":718.3333333333334,"y":635.5555555555555,"wires":[["50a8e0fb
.a97ee"]]},{"id":"696d00c2.1c65e","type":"change","z":"a5469932.810828","name":"","rules":[{"t":
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```

```
2dfd7efa.6d18b2","type":"mqtt-broker","z":"","broker":"test.mosquitto.org","port":"1883","clientId":
","usetls":false,"compatmode":true,"keepalive":"60","cleansession":true,"willTopic":"","willQos":
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```