

Augmented Reality



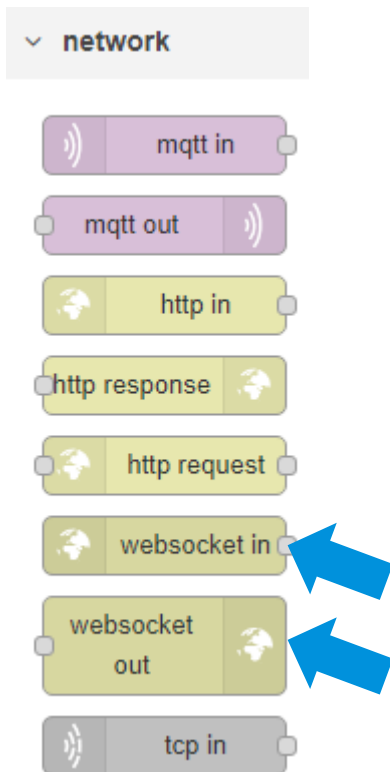
WebSocket with Node-RED

AR with Node-RED

- Node-RED server is implemented to write data to AR app and read data from AR app.
- It can be served as an API between AR app and CP-lab.
- Communication protocol used is WebSocket.

WebSocket in Node-RED

- WebSocket nodes are in Network palette



WebSocket node

- WebSocket node as a server
 - Type: Listen on
- WebSocket node as a client
 - Type: Connect to

Type

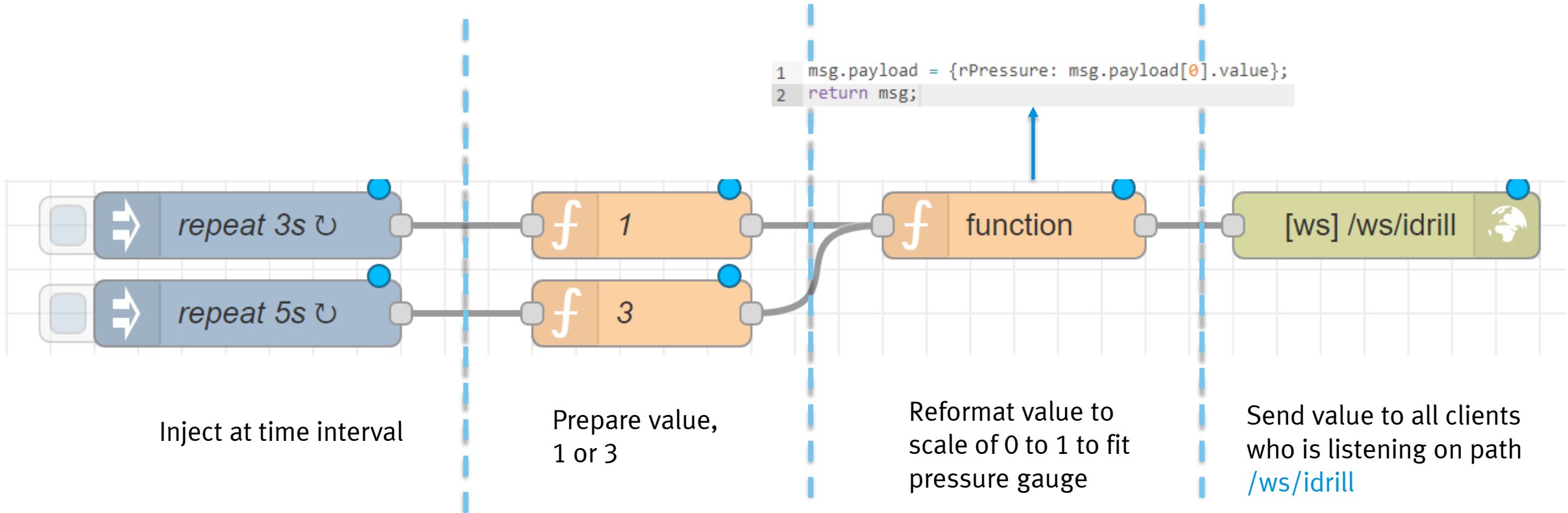
Listen on

Path

Listen on
Connect to

Send Gauge Value from Station to AR

Node-RED



Send Gauge Value from Station to AR

AR

- Websocket client

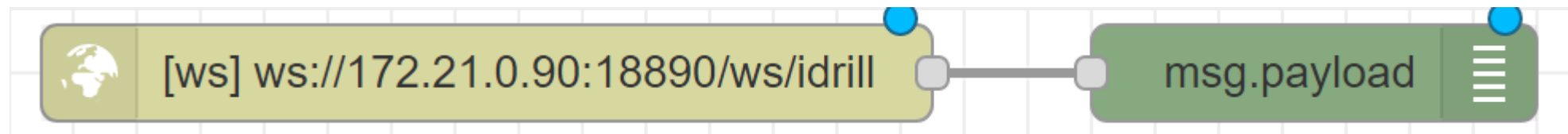
```
<VALUESERVER>  
.....  
    <WEBSOCKET url="ws://172.21.0.90:18890/ws/idrill" transmitter="send_idrill"/>  
.....  
</VALUESERVER>
```

- Gauge value

```
<NODE sx="5" sy="5" sz="5" tx="-80" ty="20" tz="20" rx="90" ry="0" rz="0" view="Main">  
.....  
    <VUMETER value="@anim:rPressure" label="pressure" labelmin="0 bar" labelmax="10 bar"/>  
.....  
</NODE>
```

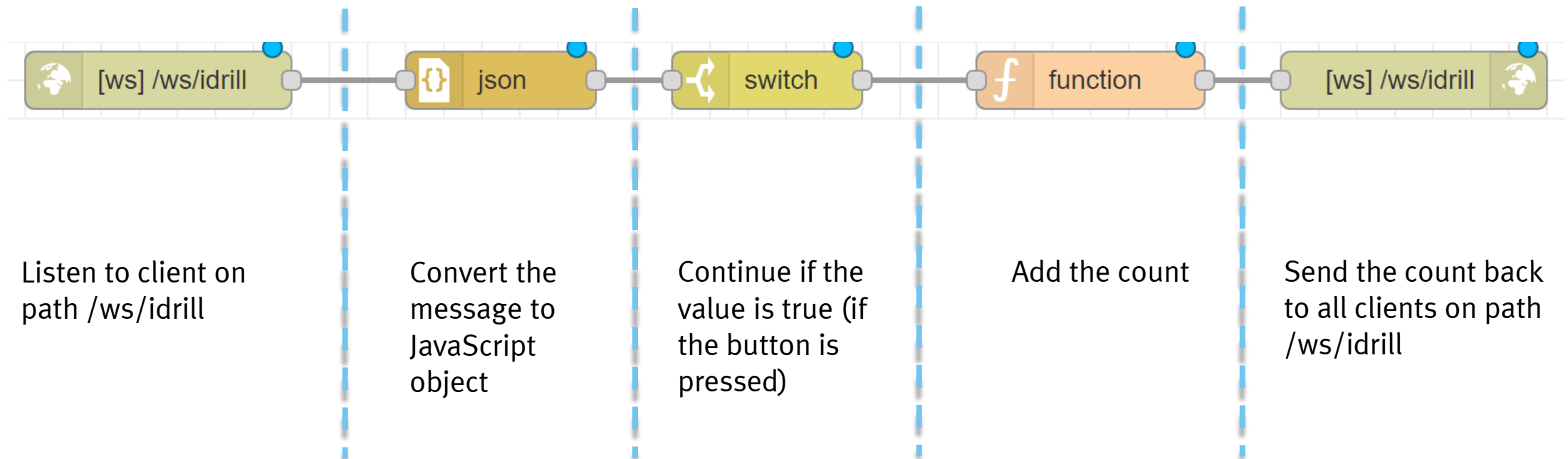
Reading Input When a Button is Pushed

Node-RED as WebSocket Client



Reading Input When a Button is Pushed

Node-RED as WebSocket Server



Hint: A message is sent via WebSocket when there are changes in value in path.

Reading Input When a Button is Pushed

AR

- WebSocket client

```
<VALUESERVER>  
  <WEBSOCKET url="ws://172.21.0.90:18890/ws/idrill" transmitter="send_idrill"/>  
</VALUESERVER>
```

- Button

```
<NODE sx="30" sy="30" sz="5" tx="80" ty="20" tz="0" rx="90" ry="0" rz="0" view="Main">  
  <MODEL texture="ok.png" file="plane.obj" sx="30" sy="30" sz="0"/>  
  <SWITCH w="2" h="2" d="2" rgb="00000000" on="true" >  
    <TRANSMIT attribute="pressed" variable="btnPressed" transmitter="send_idrill"/>  
  </SWITCH>  
</NODE>
```

RGBA Colour Code

