

Topic:

Smart Solution for Railways

Team ID:

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SPRINT – 3

PROCEDURE:

- Step 1:** Develop node red web application to track the train location.
- Step 2:** Install the required node node-red-contrib-webworldmap.
- Step 3:** Connect the node flow.
- Step 4:** Run the python code.
- Step 5:** Click the shortcut CTRL+SHIFT+M to jump to the default map (worldmap).
- Step 4:** View the map.

NODE RED FLOW:

node-red-oybfp-2022-11-04.eu-gb.mybluemix.net/red/#flow/62e376b5dbac0fa0

Node-RED

Node-RED must be restarted to enable upgraded modules

Deploy

filter nodes

Flow 1

Flow 2

Flow 3

+

debug

common

inject

debug

complete

catch

status

link in

link call

link out

comment

function

switch

change

IBM IoT

connected

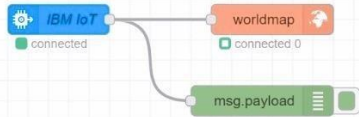
worldmap

connected 0

msg.payload

all nodes

all



PYTHON CODE FOR GPS:

```
import
wiotp.sdk.device
import time import
random
myconfig = {

    "identity": {

        "orgID": "dks661"

        "typeID": "Sundar"

        "deviceID": "45"

    },

    "auth": {

        "token": "sundar@2001"

    }

}

def
myCommandCallback(cmd):

    print ("Message has been received from IoT platform: %s
    %cmd.data['command'])

    m = cmd.data['command']

client = wiotp.sdk.DeviceClient(config = myConfig, logHandlers = None)
client.connect()
def pub
(data):

    client.publishEvent (eventId = "status", msgFormat = "json", data = myData,
    qos = 0, onPublish = None)
```

```
client.connect()
```

```
while
```

```
True:
```

```
myData = {'name': 'Train1', 'lat': 13.08363, 'lon': 80.27080}
```

```
time.sleep(2)
```

```
myData = {'name': 'Train2', 'lat': 12.40797, 'lon': 79.81410}
```

```
pub(myData)
```

```
time.sleep(2)
```

```
myData = {'name': 'Train1', 'lat': 11.83331, 'lon': 79.37465}
```

```
pub(myData)
```

```
time.sleep(6)
```

```
myData = {'name': 'Train1', 'lat': 11.59664, 'lon': 78.69899}
```

```
pub(myData)
```

```
time.sleep(6)
```

```
myData = {'name': 'Train1', 'lat': 11.63431, 'lon': 78.11122}
```

```
pub(myData)
```

```
time.sleep(6)
```

```
myData = {'name': 'Train1', 'lat': 11.32207, 'lon': 77.61684}
```

```
pub(myData)
```

```
time.sleep(6)
```

```
myData = {'name': 'Train1', 'lat': 11.03107, 'lon': 76.96864}
```

```
pub(myData)
```

```
time.sleep(6)
```

```
client.commandCallback = myCommandCallback
```

```
client.disconnect()
```

NODE RED FLOW:

```
*IDLE Shell 3.9.6*
File Edit Shell Debug Options Window Help
08}
Published data Successfully: %s {'name': 'Train2', 'lat': 12.40797, 'lon': 79.8141}
Published data Successfully: %s {'name': 'Train1', 'lat': 11.83331, 'lon': 79.37465}
Published data Successfully: %s {'name': 'Train1', 'lat': 11.59664, 'lon': 78.69899}
Published data Successfully: %s {'name': 'Train1', 'lat': 11.63431, 'lon': 78.11122}
Published data Successfully: %s {'name': 'Train1', 'lat': 11.32207, 'lon': 77.61684}
Published data Successfully: %s {'name': 'Train1', 'lat': 11.03107, 'lon': 76.96864}
Published data Successfully: %s {'name': 'Train1', 'lat': 13.08363, 'lon': 80.2708}
Published data Successfully: %s {'name': 'Train2', 'lat': 12.40797, 'lon': 79.8141}
Published data Successfully: %s {'name': 'Train1', 'lat': 11.83331, 'lon': 79.37465}
Published data Successfully: %s {'name': 'Train1', 'lat': 11.59664, 'lon': 78.69899}
Published data Successfully: %s {'name': 'Train1', 'lat': 11.63431, 'lon': 78.11122}
Published data Successfully: %s {'name': 'Train1', 'lat': 11.32207, 'lon': 77.61684}
Published data Successfully: %s {'name': 'Train1', 'lat': 11.03107, 'lon': 76.96864}
Published data Successfully: %s {'name': 'Train1', 'lat': 13.08363, 'lon': 80.2708}
Published data Successfully: %s {'name': 'Train2', 'lat': 12.40797, 'lon': 79.8141}
Published data Successfully: %s {'name': 'Train1', 'lat': 11.83331, 'lon': 79.37465}
Published data Successfully: %s {'name': 'Train1', 'lat': 11.59664, 'lon': 78.69899}
```

NODE RED OUTPUT:

The screenshot shows the Node-RED web interface. The main workspace displays a flow named 'Flow 1' with three nodes: 'IBM IoT' (blue), 'worldmap' (orange), and 'msg.payload' (green). The 'IBM IoT' node is connected to the 'worldmap' node, which is then connected to the 'msg.payload' node. The 'debug' sidebar on the right shows a list of messages received from the 'IBM IoT' node, each containing a JSON object with 'name', 'lat', and 'lon' properties. The messages are as follows:

- 11/12/2022, 8:26:30 AM node: 8efde32a28:7f6'e
iot-2/type/Sudha/id:45/ev/status/fmt/json - msg.payload: Object
▶ { name: "Train1", lat: 13.08363, lon: 80.2708 }
- 11/12/2022, 8:26:32 AM node: 8efde32a28:7f6'e
iot-2/type/Sudha/id:45/ev/status/fmt/json - msg.payload: Object
▶ { name: "Train2", lat: 12.40797, lon: 79.8141 }
- 11/12/2022, 8:26:34 AM node: 8efde32a28:7f6'e
iot-2/type/Sudha/id:45/ev/status/fmt/json - msg.payload: Object
▶ { name: "Train1", lat: 11.83331, lon: 79.37465 }
- 11/12/2022, 8:26:40 AM node: 8efde32a28:7f6'e
iot-2/type/Sudha/id:45/ev/status/fmt/json - msg.payload: Object
▶ { name: "Train1", lat: 11.59664, lon: 78.69899 }
- 11/12/2022, 8:26:46 AM node: 8efde32a28:7f6'e
iot-2/type/Sudha/id:45/ev/status/fmt/json - msg.payload: Object
▶ { name: "Train1", lat: 11.63431, lon: 78.11122 }
- 11/12/2022, 8:26:52 AM node: 8efde32a28:7f6'e
iot-2/type/Sudha/id:45/ev/status/fmt/json - msg.payload: Object
▶ { name: "Train1", lat: 11.32207, lon: 77.61684 }
- 11/12/2022, 8:26:58 AM node: 8efde32a28:7f6'e
iot-2/type/Sudha/id:45/ev/status/fmt/json - msg.payload: Object
▶ { name: "Train1", lat: 11.03107, lon: 76.96864 }

TRAIN TRACKING:

