

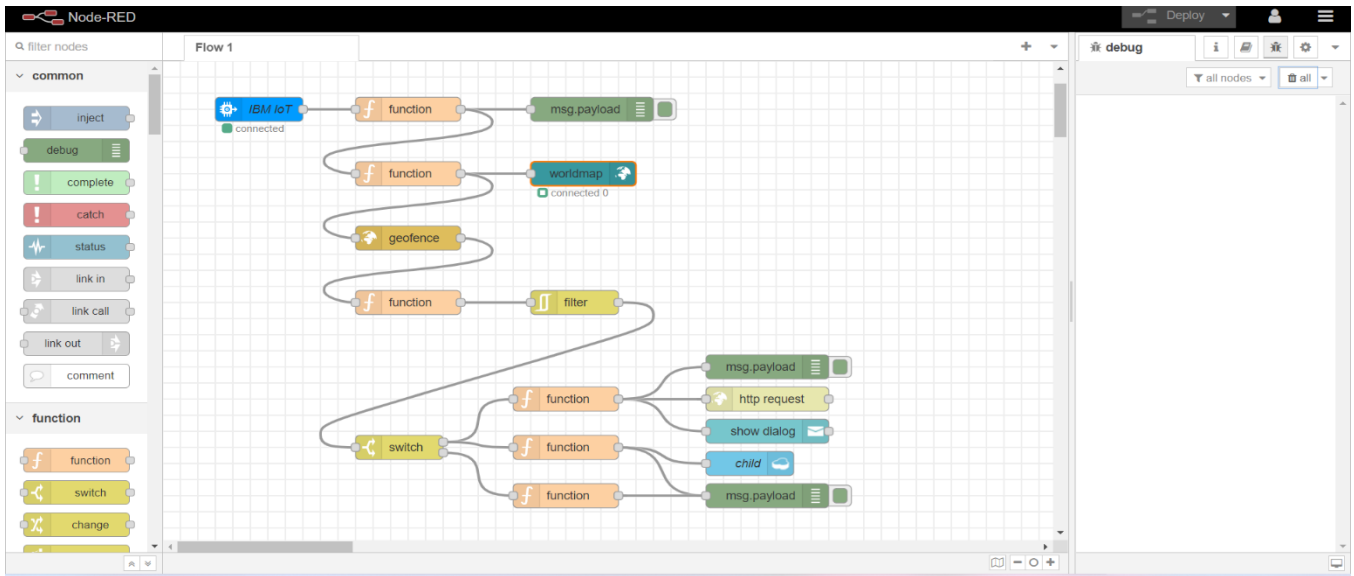
Project Development – Delivery plan sprint-3

IoT Based Safety Gadget for Child Safety Monitoring & Notification

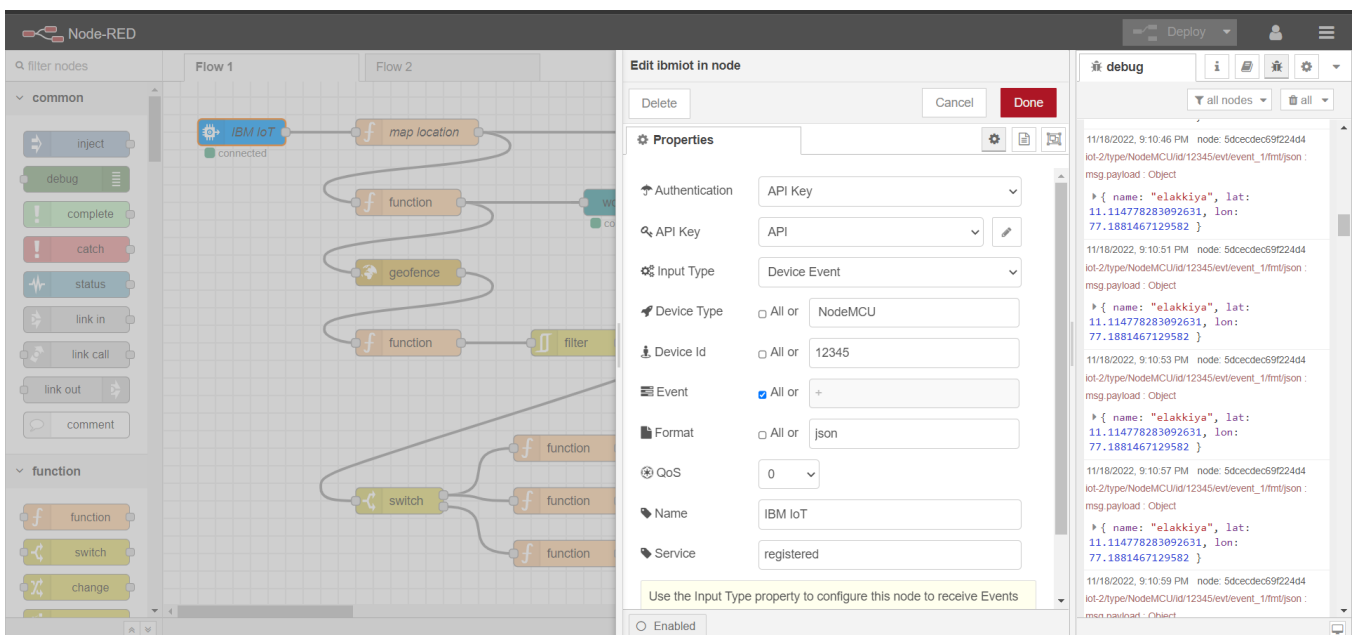
TEAM ID:PNT2022TMID42649

Creating Node-Red service and connecting with IBM cloud

Creating Node-Red service:



Codes in each Node:



Node-RED interface showing a flow with an IBM IoT node, multiple function nodes, a geofence node, and a switch node. The 'Edit function node' panel is open, displaying the following code:

```
1 var name= msg.payload.name
2 var lat= msg.payload.lat
3 = msg.payload.lon
4 global.set('latitude',lat)
5 global.set('longitude',lon)
6 global.set('name',name)
7 return msg;
```

The 'debug' panel on the right shows a log of messages received from the IoT node, including coordinates and a name.

Node-RED interface showing the same flow as above, but with the 'Edit debug node' panel open. The 'Output' is set to 'msg. payload' and 'To' is checked for 'debug window'. The 'Name' field is empty.

The 'debug' panel on the right shows the same log of messages as in the first image.

Node-RED interface showing a flow with an IBM IoT node, function nodes, and a switch node. The 'Edit function node' panel is open, displaying the following code:

```
1 msg.payload = {
2   "name": global.get('name'),
3   "lat": global.get('latitude'),
4   "lon": global.get('longitude')
5 }
6 return msg;
7
```

The debug console shows the following log entries:

```
11/18/2022, 9:10:46 PM node: 5dcecd69f22404
iot-2/type/NodeMCU/ld/12345/ev/levent_1/fmt/json :
msg.payload : Object
> { name: "elakkiya", lat:
11.114778283092631, lon:
77.1881467129582 }

11/18/2022, 9:10:51 PM node: 5dcecd69f22404
iot-2/type/NodeMCU/ld/12345/ev/levent_1/fmt/json :
msg.payload : Object
> { name: "elakkiya", lat:
11.114778283092631, lon:
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11.114778283092631, lon:
77.1881467129582 }

11/18/2022, 9:10:57 PM node: 5dcecd69f22404
iot-2/type/NodeMCU/ld/12345/ev/levent_1/fmt/json :
msg.payload : Object
> { name: "elakkiya", lat:
11.114778283092631, lon:
77.1881467129582 }

11/18/2022, 9:10:59 PM node: 5dcecd69f22404
iot-2/type/NodeMCU/ld/12345/ev/levent_1/fmt/json :
msg.payload : Object
> { name: "elakkiya", lat:
11.114778283092631, lon:
77.1881467129582 }
```

Node-RED interface showing a flow with an IBM IoT node, function nodes, and a switch node. The 'Edit worldmap node' panel is open, displaying the following settings:

- Group: [Child Tracker] Map
- Size: auto
- Start: Latitude 11.1147782, Longitude 77.1881467, Zoom 16
- Map list: 7 selected
- Base map: ESRI Streetmap
- Overlays: 5 selected
- Cluster when zoom level is less than 0 (0, off - 19)
- Max age: Remove markers after 600 seconds
- User menu: Show, Layer menu: Hide
- Lock map: False, Lock zoom: False

The debug console shows the following log entries:

```
11/18/2022, 9:10:46 PM node: 5dcecd69f22404
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msg.payload : Object
> { name: "elakkiya", lat:
11.114778283092631, lon:
77.1881467129582 }
```

Node-RED interface showing a flow with an IBM IoT node connected to a function node, which triggers a geofence node. The geofence node is configured with a map showing a circular area and the action "add 'inarea' property".

Edit geofence node

Properties

Map: A map showing a circular geofence area. The map includes labels for "Newell Avenue" and "Rotary Church Road".

Map controls: +, -, Copy, Paste, Search (Q).

Map data: Leaflet | Map data © OpenStreetMap contributors

Options: _ Floor: ground, _ Ceiling: infinity

Action: add "inarea" property

Enabled: ☐

debug

all nodes, all

Log entries:

- 11/18/2022, 9:10:46 PM node: 5dcecd6922404
iot-2/type/NodeMCU/id/12345/ev/levent_1/fmt/json :
msg.payload : Object
{ name: "elakkiya", lat: 11.114778283092631, lon: 77.1881467129582 }
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iot-2/type/NodeMCU/id/12345/ev/levent_1/fmt/json :
msg.payload : Object
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iot-2/type/NodeMCU/id/12345/ev/levent_1/fmt/json :
msg.payload : Object
{ name: "elakkiya", lat: 11.114778283092631, lon: 77.1881467129582 }
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msg.payload : Object
{ name: "elakkiya", lat: 11.114778283092631, lon: 77.1881467129582 }
- 11/18/2022, 9:10:59 PM node: 5dcecd6922404
iot-2/type/NodeMCU/id/12345/ev/levent_1/fmt/json :
msg.payload : Object
{ name: "elakkiya", lat: 11.114778283092631, lon: 77.1881467129582 }

Node-RED interface showing a flow with an IBM IoT node connected to a function node, which triggers a geofence node. The function node is configured with the code:

```
1 msg.payload=msg.location.inarea
2 return msg;
```

Edit function node

Properties

Name: Name

Setup, On Start, On Message, On Stop

Code:

```
1 msg.payload=msg.location.inarea
2 return msg;
```

Enabled: ☐

debug

all nodes, all

Log entries:

- 11/18/2022, 9:10:46 PM node: 5dcecd6922404
iot-2/type/NodeMCU/id/12345/ev/levent_1/fmt/json :
msg.payload : Object
{ name: "elakkiya", lat: 11.114778283092631, lon: 77.1881467129582 }
- 11/18/2022, 9:10:51 PM node: 5dcecd6922404
iot-2/type/NodeMCU/id/12345/ev/levent_1/fmt/json :
msg.payload : Object
{ name: "elakkiya", lat: 11.114778283092631, lon: 77.1881467129582 }
- 11/18/2022, 9:10:53 PM node: 5dcecd6922404
iot-2/type/NodeMCU/id/12345/ev/levent_1/fmt/json :
msg.payload : Object
{ name: "elakkiya", lat: 11.114778283092631, lon: 77.1881467129582 }
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msg.payload : Object
{ name: "elakkiya", lat: 11.114778283092631, lon: 77.1881467129582 }
- 11/18/2022, 9:10:59 PM node: 5dcecd6922404
iot-2/type/NodeMCU/id/12345/ev/levent_1/fmt/json :
msg.payload : Object
{ name: "elakkiya", lat: 11.114778283092631, lon: 77.1881467129582 }

Node-RED interface showing a flow configuration and the 'Edit filter node' dialog.

Flow 1: IBM IoT (connected) → function → function → function → geofence → function → filter.

Flow 2: switch → function → function → function.

Edit filter node dialog:

- Mode: block unless value changes
- Property: msg.payload
- Apply mode separately for each: ☒
- Name: Name
- Enabled: ☐

Debug console:

```
11/18/2022, 9:10:46 PM node: 5dcecd69f224d4
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json :
msg.payload : Object
  { name: "elakkiya", lat:
    11.114778283092631, lon:
    77.1881467129582 }

11/18/2022, 9:10:51 PM node: 5dcecd69f224d4
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json :
msg.payload : Object
  { name: "elakkiya", lat:
    11.114778283092631, lon:
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11/18/2022, 9:10:53 PM node: 5dcecd69f224d4
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json :
msg.payload : Object
  { name: "elakkiya", lat:
    11.114778283092631, lon:
    77.1881467129582 }

11/18/2022, 9:10:57 PM node: 5dcecd69f224d4
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json :
msg.payload : Object
  { name: "elakkiya", lat:
    11.114778283092631, lon:
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11/18/2022, 9:10:59 PM node: 5dcecd69f224d4
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json :
msg.payload : Object
  { name: "elakkiya", lat:
    11.114778283092631, lon:
    77.1881467129582 }
```

Node-RED interface showing a flow configuration and the 'Edit switch node' dialog.

Flow 1: IBM IoT (connected) → function → function → function → geofence → function → filter.

Flow 2: switch → function → function → function.

Edit switch node dialog:

- Name: Name
- Property: msg.payload
- Rules:
 - is false → 1
 - is true → 2
- checking all rules: ☒
- recreate message sequences: ☐
- Enabled: ☐

Debug console:

```
11/18/2022, 9:10:46 PM node: 5dcecd69f224d4
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json :
msg.payload : Object
  { name: "elakkiya", lat:
    11.114778283092631, lon:
    77.1881467129582 }

11/18/2022, 9:10:51 PM node: 5dcecd69f224d4
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json :
msg.payload : Object
  { name: "elakkiya", lat:
    11.114778283092631, lon:
    77.1881467129582 }

11/18/2022, 9:10:53 PM node: 5dcecd69f224d4
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json :
msg.payload : Object
  { name: "elakkiya", lat:
    11.114778283092631, lon:
    77.1881467129582 }

11/18/2022, 9:10:57 PM node: 5dcecd69f224d4
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json :
msg.payload : Object
  { name: "elakkiya", lat:
    11.114778283092631, lon:
    77.1881467129582 }

11/18/2022, 9:10:59 PM node: 5dcecd69f224d4
iot-2/type/NodeMCU/id/12345/evt/event_1/fmt/json :
msg.payload : Object
  { name: "elakkiya", lat:
    11.114778283092631, lon:
    77.1881467129582 }
```

Node-RED interface showing a flow with an IBM IoT node connected to a function node. The function node is being edited, displaying the following code:

```
1 var d = new Date();
2
3 var utc = d.getTime() + (d.getTimezoneoffset() * 60000);
4
5 var offset = 5.5;
6
7 newDate = new Date(utc + (360000*offset));
8
9 msg.payload = {
10   "message": "Exit",
11   "Time": newDate.toDateString(),
12   "name": global.get('name'),
13   "lat": global.get('latitude'),
14   "lon": global.get('longitude')
15 };
16
17 return msg;
```

The debug console shows the following log entries:

```
11/18/2022, 9:10:46 PM node: 5dcecd69f22404
iot-2/type/NodeMCU/id/12345/ev/levent_1/fmt/json :
msg.payload : Object
{
  name: "elakkiya", lat:
  11.114778283092631, lon:
  77.1881467129582 }

11/18/2022, 9:10:51 PM node: 5dcecd69f22404
iot-2/type/NodeMCU/id/12345/ev/levent_1/fmt/json :
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iot-2/type/NodeMCU/id/12345/ev/levent_1/fmt/json :
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11/18/2022, 9:10:59 PM node: 5dcecd69f22404
iot-2/type/NodeMCU/id/12345/ev/levent_1/fmt/json :
msg.payload : Object
```

Node-RED interface showing a flow with an IBM IoT node connected to a function node. The function node is being edited, displaying the following code:

```
1 var d = new Date();
2
3 var utc = d.getTime() + (d.getTimezoneoffset() * 60000);
4
5 var offset = 5.5;
6
7 newDate = new Date(utc + (360000*offset));
8
9 msg.payload = {
10   "message": "Entry",
11   "Time": newDate.toDateString(),
12   "name": global.get('name'),
13   "lat": global.get('latitude'),
14   "lon": global.get('longitude')
15 };
16
17 return msg;
```

The debug console shows the following log entries:

```
11/18/2022, 9:10:46 PM node: 5dcecd69f22404
iot-2/type/NodeMCU/id/12345/ev/levent_1/fmt/json :
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11/18/2022, 9:10:59 PM node: 5dcecd69f22404
iot-2/type/NodeMCU/id/12345/ev/levent_1/fmt/json :
msg.payload : Object
```

Node-RED

filter nodes

common

- inject
- debug
- complete
- catch
- status
- link in
- link call
- link out
- comment

function

- function

Flow 1

IBM IoT

connected

function

function

function

geofence

rbe

switch

function

function

function

function

Edit http request node

Delete Cancel Done

Properties

Method GET

URL <https://www.fast2sms.com/dev/bulkV2?authorizati>

Payload Ignore

☐ Enable secure (SSL/TLS) connection

☐ Use authentication

☐ Enable connection keep-alive

☐ Use proxy

☐ Only send non-2xx responses to Catch node

Return a UTF-8 string

Name Name

☐ Enabled

Node-RED

filter nodes

common

- inject
- debug
- complete
- catch
- status
- link in
- link call
- link out
- comment

function

- function
- switch
- change

Flow 1

IBM IoT

connected

function

function

function

geofence

filter

Flow 2

function

function

function

function

Edit notification node

Delete Cancel Done

Properties

Layout OK / Cancel Dialog

☒ Send to all browser sessions.

☒ Default action label OK

☒ Secondary action label (optional label for Cancel button)

☐ Accept raw HTML/JavaScript input in msg.payload to format popup.

Class [msg.className]

Topic [msg.topic]

Name Name

Note: checking Accept raw HTML/JavaScript can allow injection of code. Ensure the input comes from trusted sources.

☐ Enabled

debug

all nodes

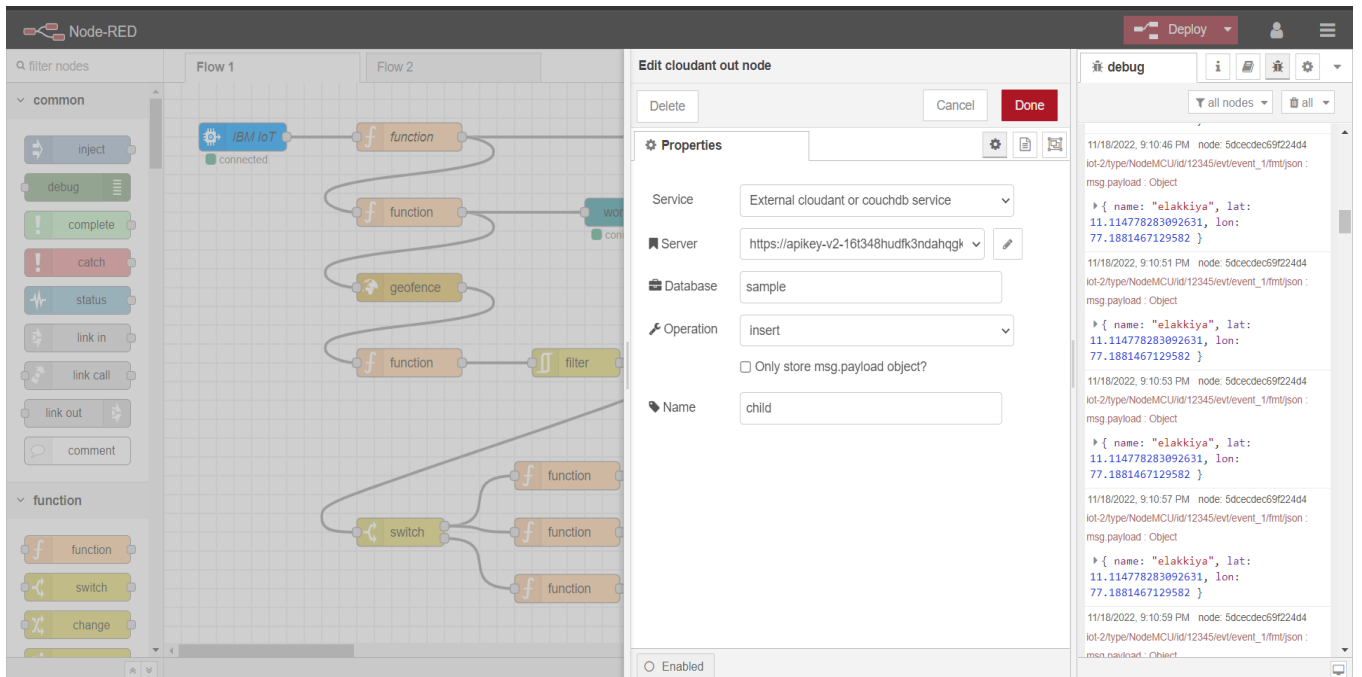
11/18/2022, 9:10:46 PM node: 5dcecd69f224d4
iot-2/type/NodeMCU/ld/12345/evl/event_1/fmt/json :
msg.payload : Object
{ name: "elakkiya", lat: 11.114778283092631, lon: 77.1881467129582 }

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iot-2/type/NodeMCU/ld/12345/evl/event_1/fmt/json :
msg.payload : Object
{ name: "elakkiya", lat: 11.114778283092631, lon: 77.1881467129582 }

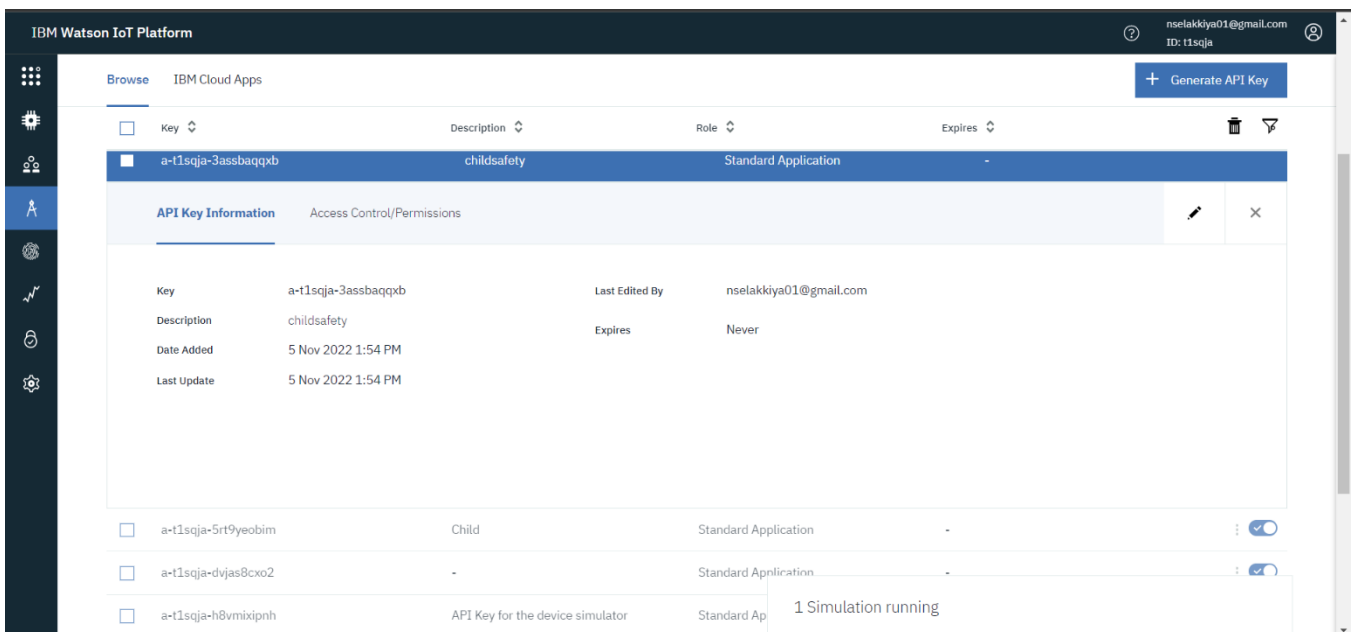
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iot-2/type/NodeMCU/ld/12345/evl/event_1/fmt/json :
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msg.payload : Object
{ name: "elakkiya", lat: 11.114778283092631, lon: 77.1881467129582 }

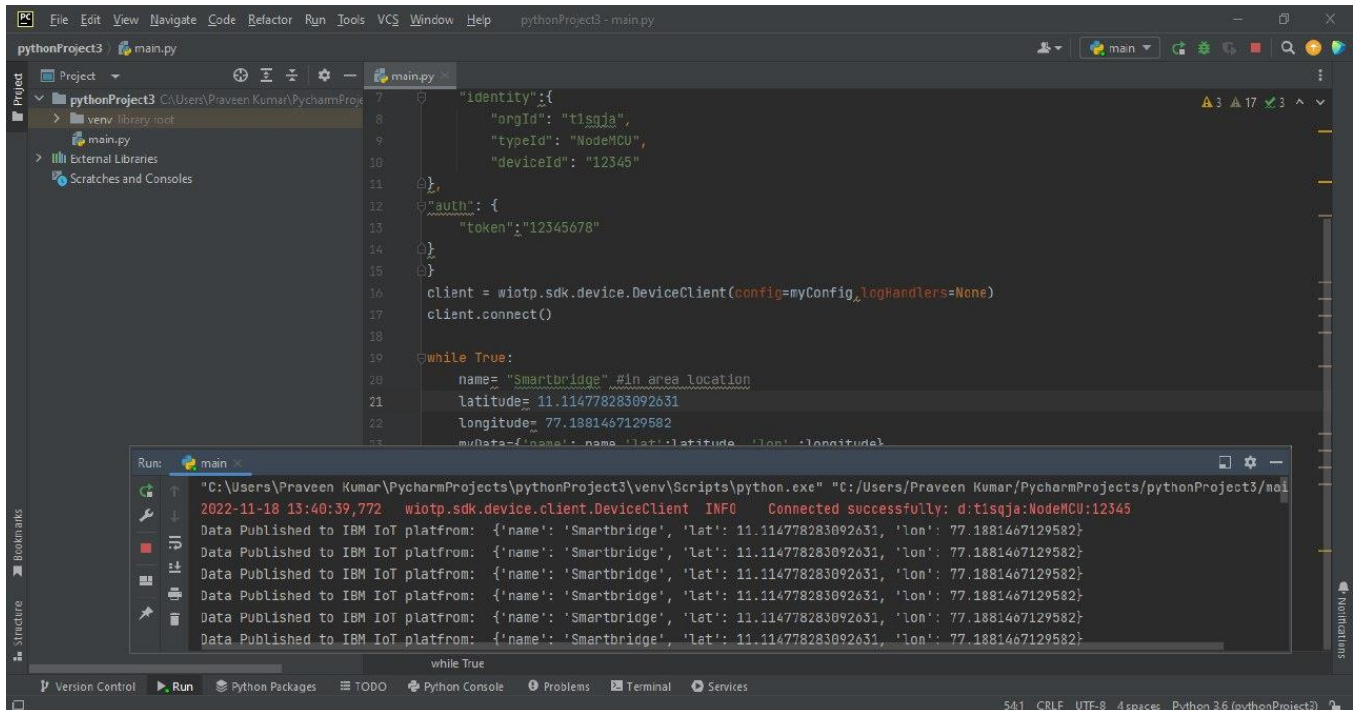
11/18/2022, 9:10:59 PM node: 5dcecd69f224d4
iot-2/type/NodeMCU/ld/12345/evl/event_1/fmt/json :
msg.payload : Object



Connecting with IBM Cloud: Using IBM IOT node through the API key



Transferring values from Python Code:



```
pythonProject3 - main.py
7  "identity":{
8      "orgId": "t1sqja",
9      "typeId": "NodeMCU",
10     "deviceId": "12345"
11 },
12 "auth": {
13     "token": "12345678"
14 }
15 }
16 client = wiotp.sdk.device.DeviceClient(config=myConfig,logHandlers=None)
17 client.connect()
18
19 while True:
20     name= "Smartbridge" #in area location
21     latitude= 11.114778283092631
22     longitude= 77.1881467129582
23     msgData={name:'name','lat':latitude,'lon':longitude}
```

Run: main

```
"C:\Users\Praveen Kumar\PycharmProjects\pythonProject3\venv\Scripts\python.exe" "C:\Users\Praveen Kumar\PycharmProjects\pythonProject3\main.py"
2022-11-18 13:40:39,772 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:t1sqja:NodeMCU:12345
Data Published to IBM IoT platform: {'name': 'Smartbridge', 'lat': 11.114778283092631, 'lon': 77.1881467129582}
Data Published to IBM IoT platform: {'name': 'Smartbridge', 'lat': 11.114778283092631, 'lon': 77.1881467129582}
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Data Published to IBM IoT platform: {'name': 'Smartbridge', 'lat': 11.114778283092631, 'lon': 77.1881467129582}
Data Published to IBM IoT platform: {'name': 'Smartbridge', 'lat': 11.114778283092631, 'lon': 77.1881467129582}
```

Node-Red:

Connecting with IBM Cloud: Using IBM IOT node through the API key

