

SPRINT 1

Team id: PNT2022TMID49101

Project name: smart waste management for metropolitan cities

Create and configure IBM cloud services

Create IBM Watson IoT Platform And Device

IBM Watson IoT Platform is a complete end-to-end solution for IoT needs. It integrates a bundled set of services to connect, capture, register, analyze, and archive your IoT devices and data.

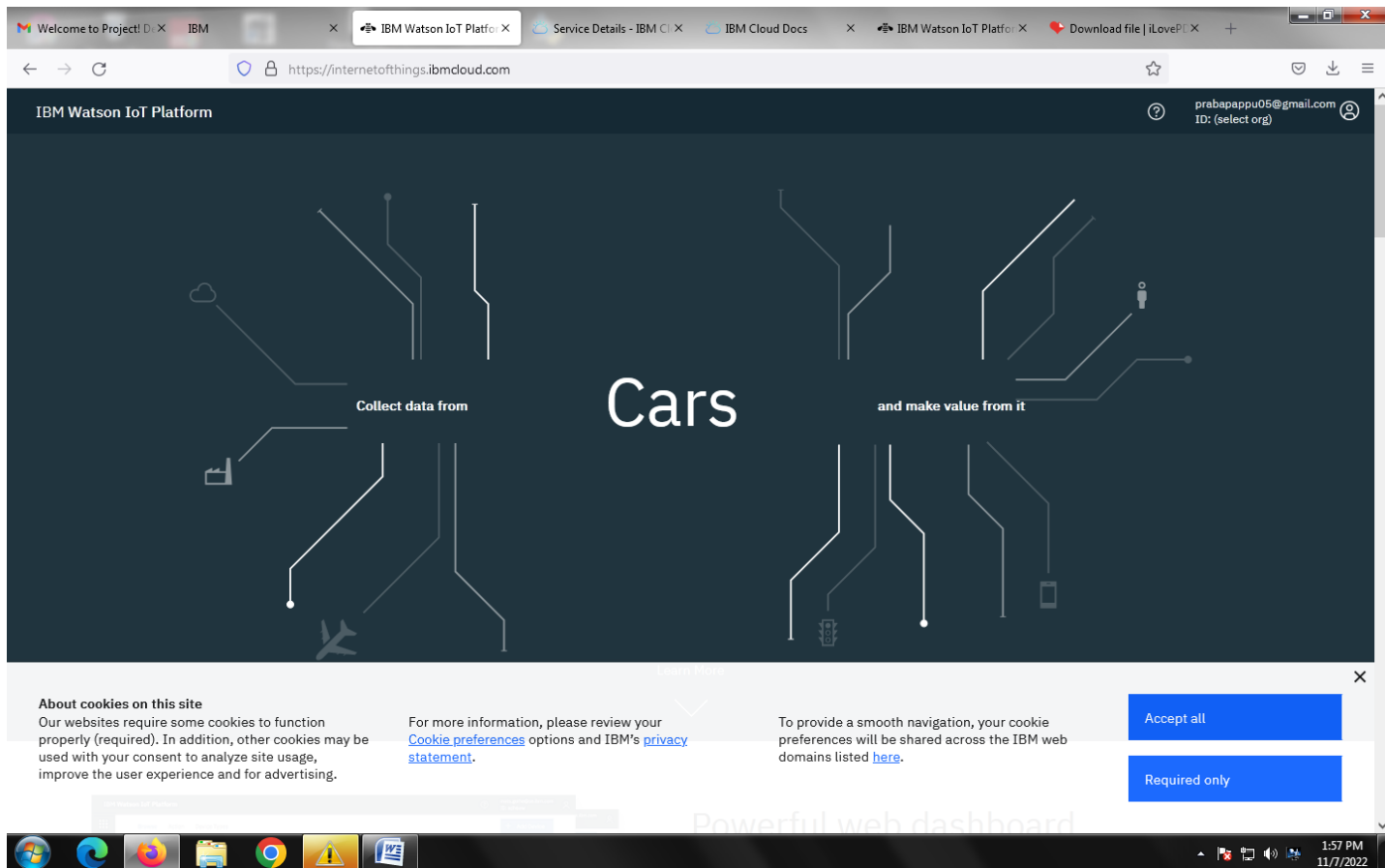
This is part two of a two-part series. This document is a simple, easy to follow process to connect a device to IBM Watson IoT Platform. It will go through connecting via an MQTT connection.

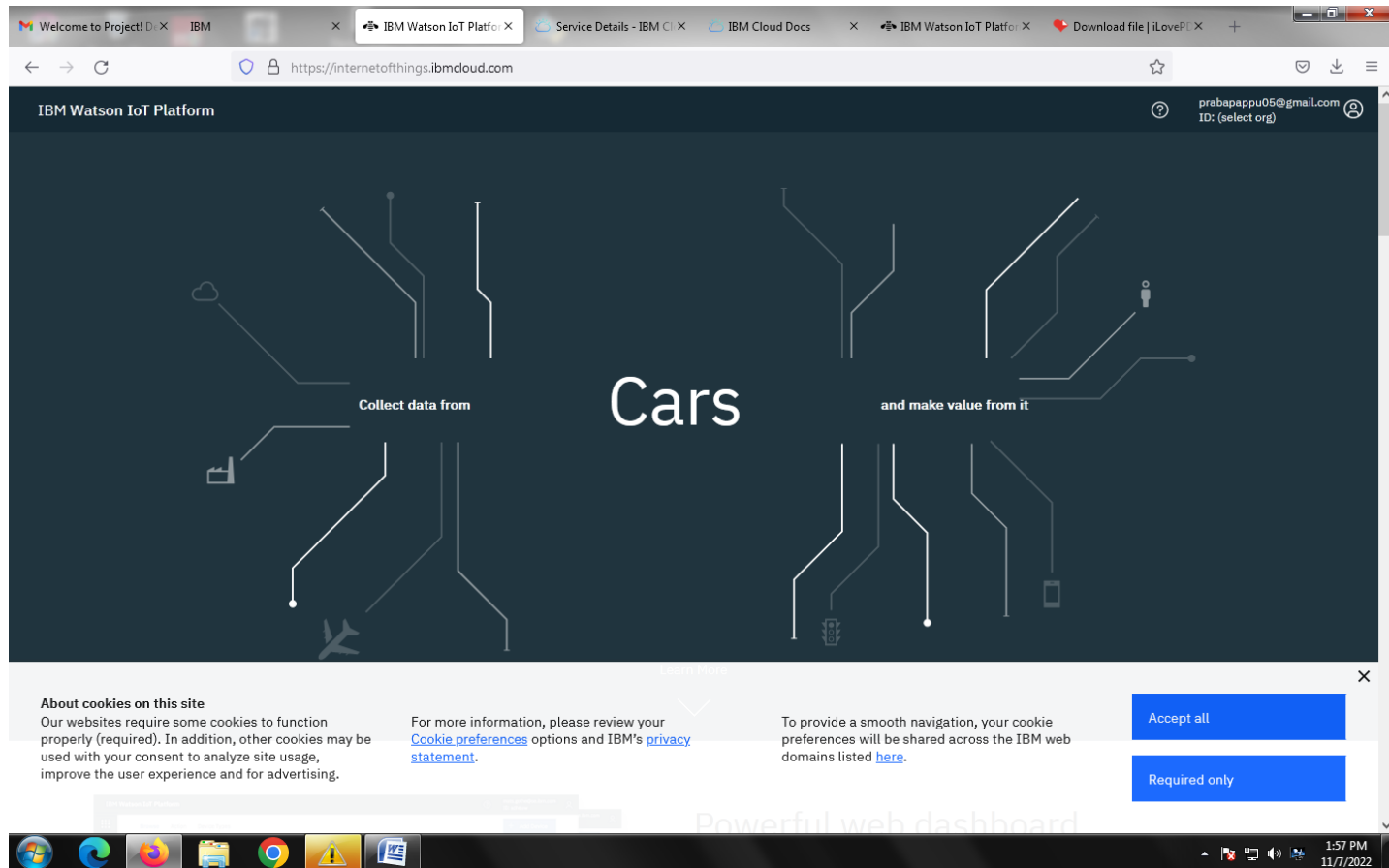
I. Login to IBM Watson IoT Platform to Verify Connection

STEP1:

Go to URL - <https://internetofthings.ibmcloud.com/>

Click Sign in





STEP2:

Enter an IBMid and click Continue
(Click Remember Me if you want)



Log in to IBM

IBMId

Forgot IBMId?

☒ Remember me ?

Continue

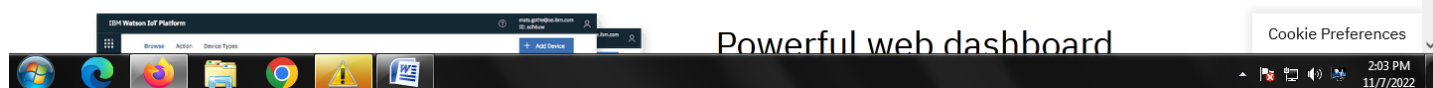
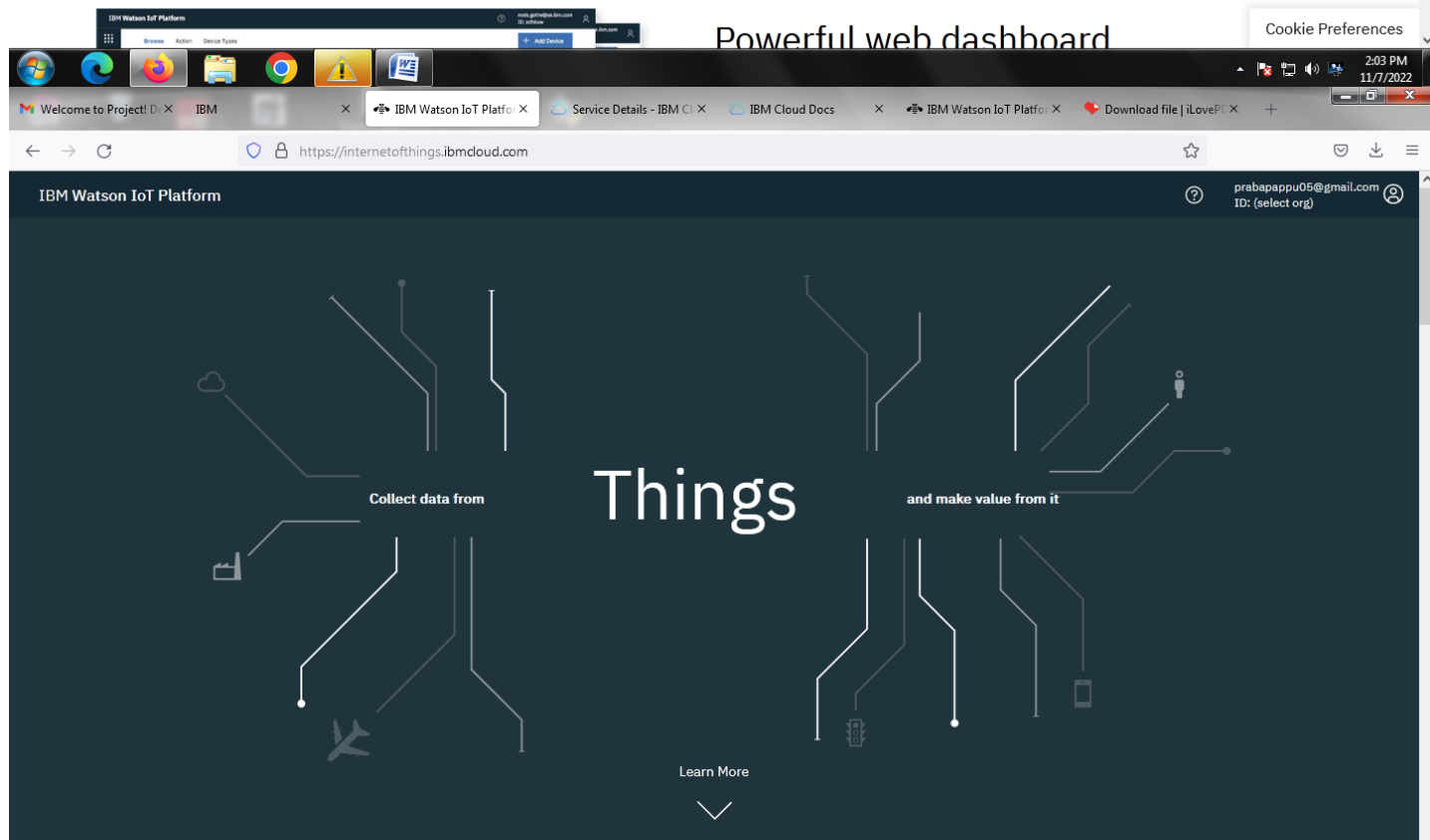
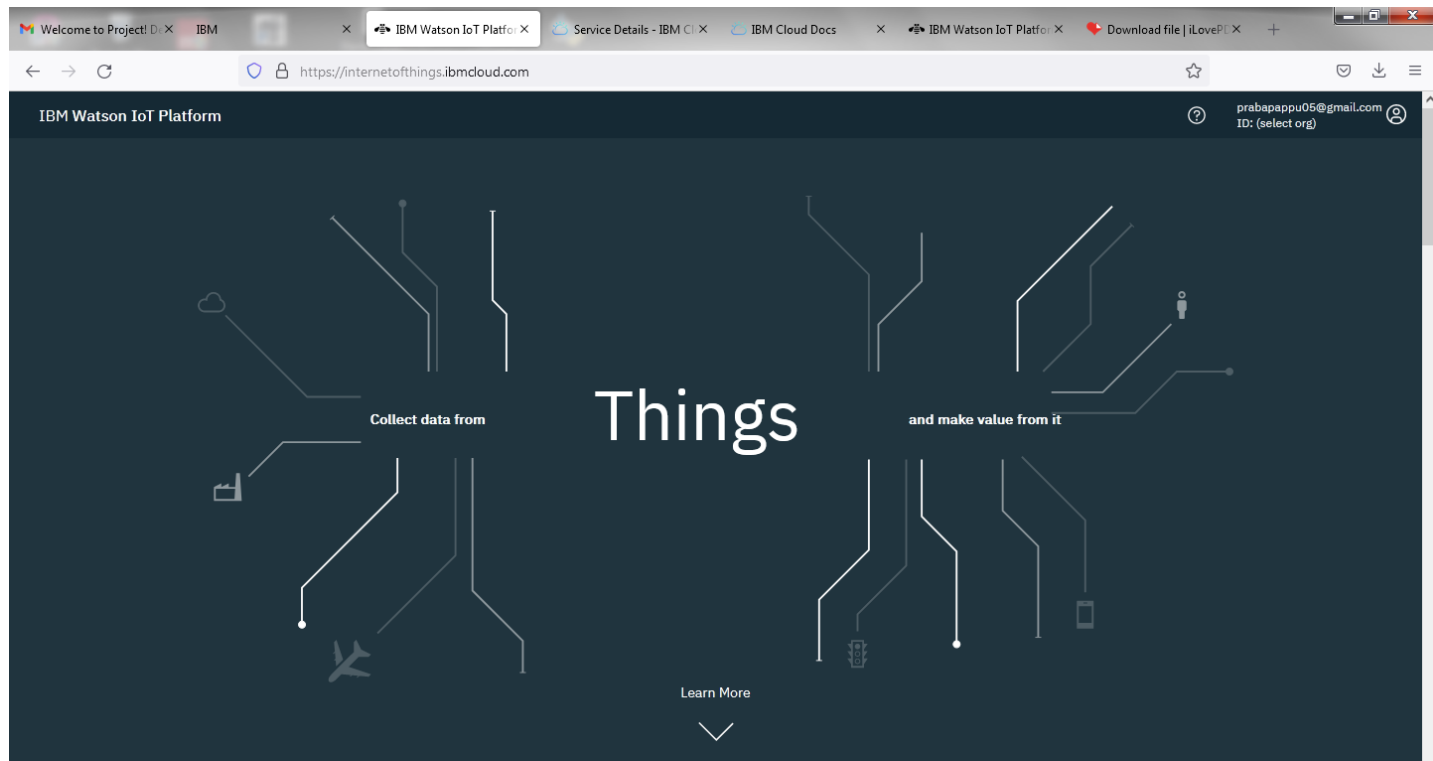
Don't have an account? [Create an IBMId](#)

Need help? [Contact the IBMId help desk](#)

[Contact](#) [Privacy](#) [Terms of use](#) [Accessibility](#) [Cookie preferences](#)

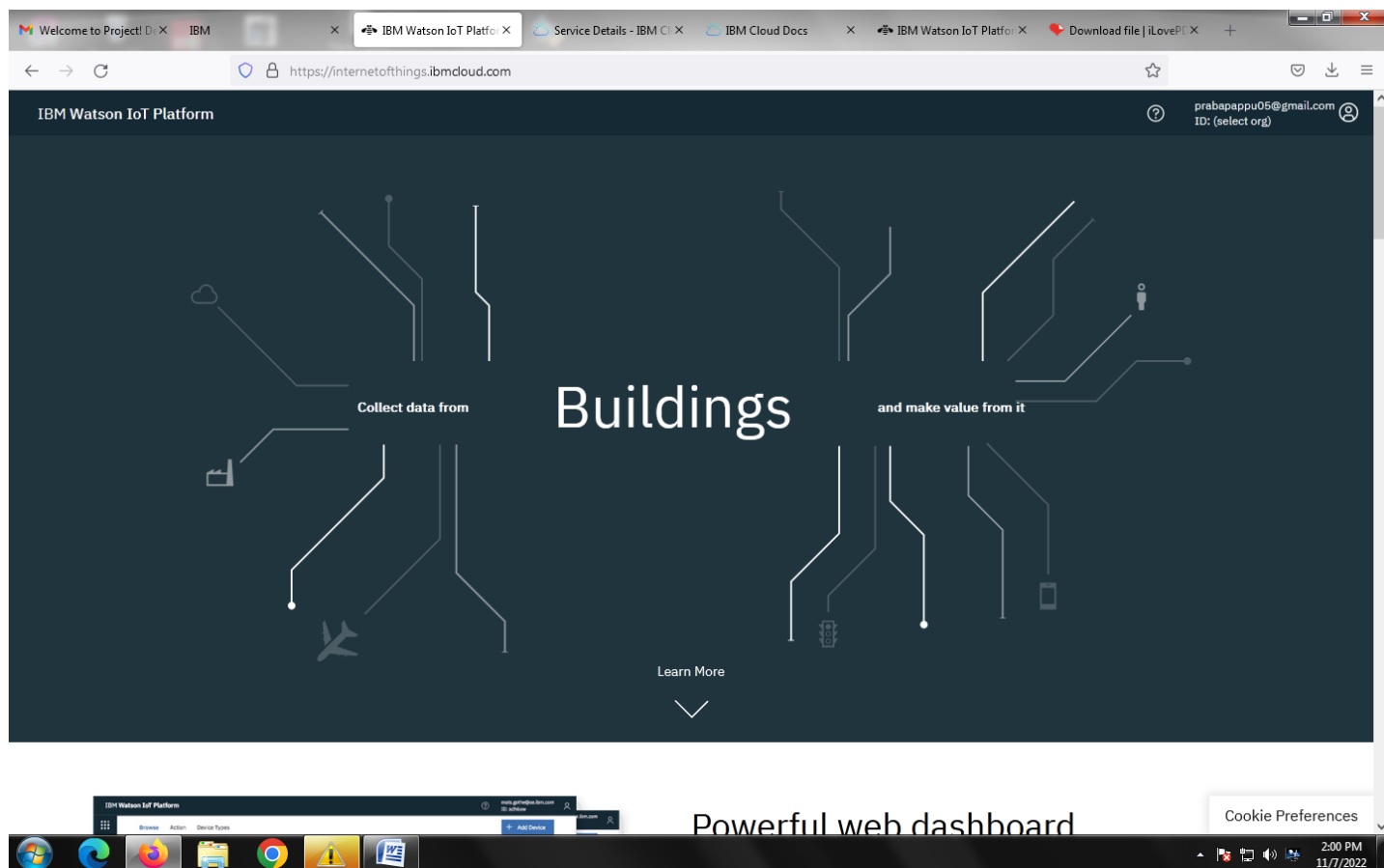
Enter the Password and click Login
(Click Remember Me if you want)

You are now logged into IBM Watson IoT Platform



STEP3:

Click select org



Select the org

STEP4:

Click Devices option and see that the device is Connected.

IBM Watson IoT Platform

prabapappu05@gmail.com
ID: 99jhzm

Add Device +

Browse Devices

All Devices Diagnose

This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different criteria. To get started, you can add devices by using the Add Device button, or by using API.

Search by Device ID

Device Simulator ☐

<input type="checkbox"/>	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
> <input type="checkbox"/>	12345	Disconnected	NodeMCU	Device	Nov 3, 2022 2:44 PM	
> <input type="checkbox"/>	123456	Disconnected	NodeMCU	Device	Nov 3, 2022 3:39 PM	

Items per page 50 | 1-2 of 2 items

1 of 1 page < 1 >

IBM Watson IoT Platform

prabapappu05@gmail.com
ID: 99jhzm

Browse Action Device Types Interfaces

Add Device

Browse Devices

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>	123456	Disconnected	NodeMCU	Device	Nov 3, 2022 3:39 PM	

Items per page 50 | 1-2 of 2 items

1 of 1 page

STEP 5:

Click the device and Logs and see that the connection was made

IBM Watson IoT Platform

prabapappu05@gmail.com
ID: c7yzbb

Browse Action Device Types Interfaces

Add Device

Search by Device ID

Device Simulator

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location	Added By	Device Class
TestDevice	Connected	DeviceTypeTest	Device	Sep 19, 2019 10:32 AM		ibmiotdevice@gmail.com	

Identity Device Information Recent Events State Logs

Diagnostic Logs

A list of device errors and timestamps detailing when the error occurred.

Severity	Message	Timestamp
----------	---------	-----------

Connection Logs

A list of the connection events reported for this device.

Message	Timestamp
Twin auth succeeded: ClientID=d7yzbb:DeviceTypeTest:TestDe...	Oct 1, 2019 1:35 PM

STEP6:
Click Recent Events and see the data that was sent from the device to IBM WatsonIoT Platform .

IBM Watson IoT Platform

ibmiotdevice@gmail.com
ID: rpydb

Add Device

Browse

Action

Device Types

Interfaces

All Devices

Diagnose

This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different criteria. To get started, you can add devices by using the Add Device button, or by using API.

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Device Simulator

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location	Added By	Device Class
TestDevice	Connected	DeviceTypeTest	Device	Sep 19, 2019 10:32 AM		ibmiotdevice@gmail.com	

Identity

Device Information

Recent Events

State

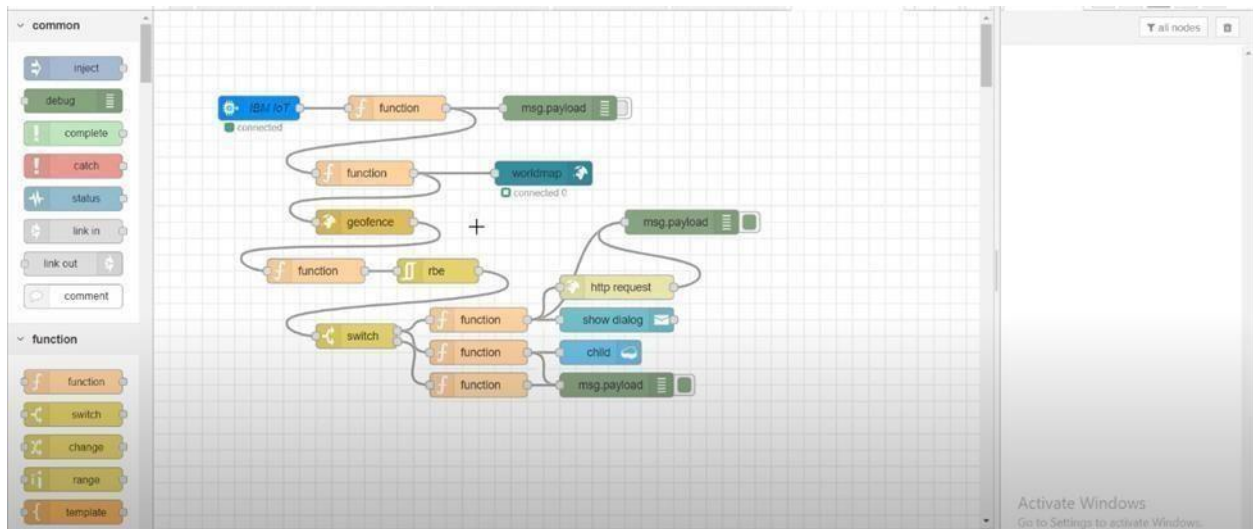
Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
event	["d":{"temp":"46.2"}]	json	a few seconds ago
event	["d":{"temp":"46.2"}]	json	a few seconds ago
event	["d":{"temp":"46.2"}]	json	a few seconds ago
event	["d":{"temp":"46.2"}]	json	a few seconds ago
event	["d":{"temp":"45.6"}]	json	a few seconds ago

NODE RED SERVICE

Step 1: Connect the blocks.



```

import json
import wiotp.sdk.device
import time

myConfig = {
    "identity": {
        "orgId": "h55fay",
        "typeId": "NodeMCD",
        "deviceId": "12345"
    },
    "auth": {
        "token": "12345678"
    }
}

client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

while True:
    name= "Smartbridge"
    #in area location

    latitude= 17.4225176
    longitude= 78.5458842

    #out area location

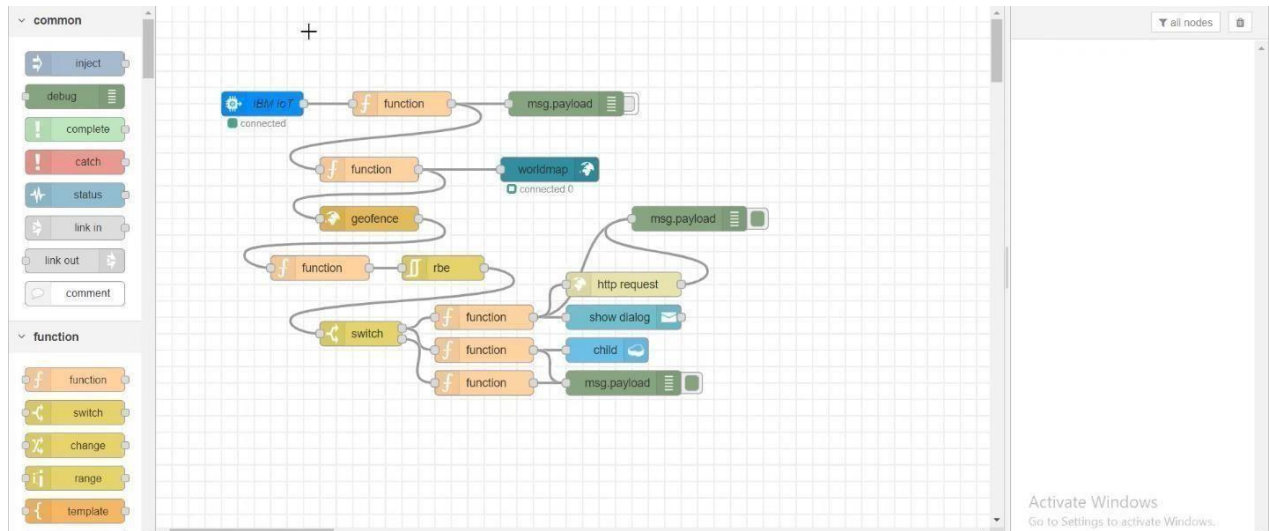
    #latitude= 17.4219272
    #longitude= 78.5488793
    myData={'name': name, 'lat':latitude, 'lon':longitude}
    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
    print("Data published to IBM IoT platform: ",myData)
    time.sleep(5)

client.disconnect() ] ]

```

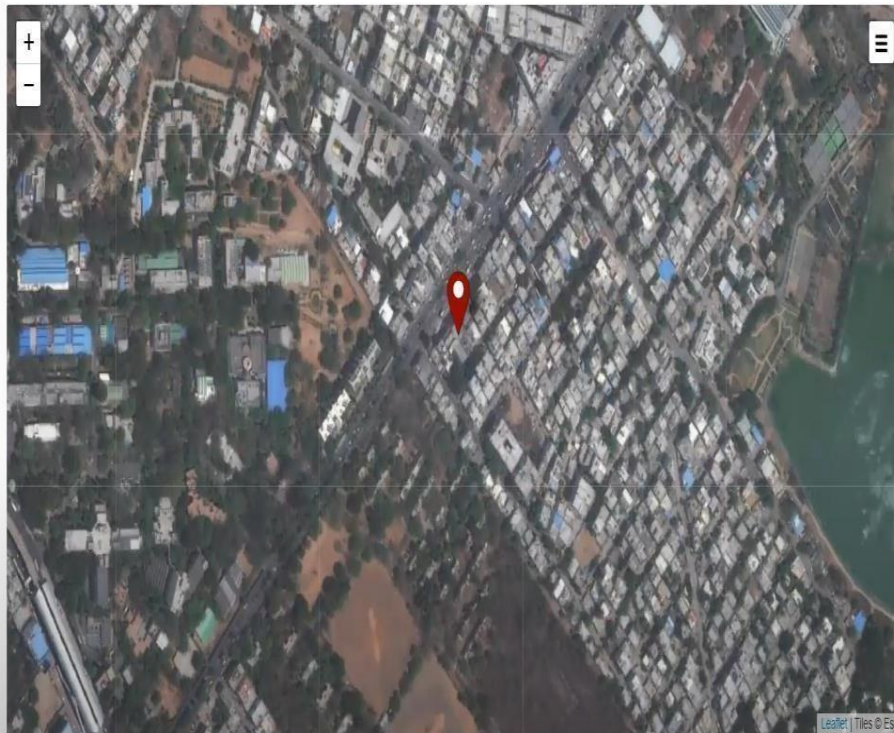
Step

Step 3: Click the geo-fence node.

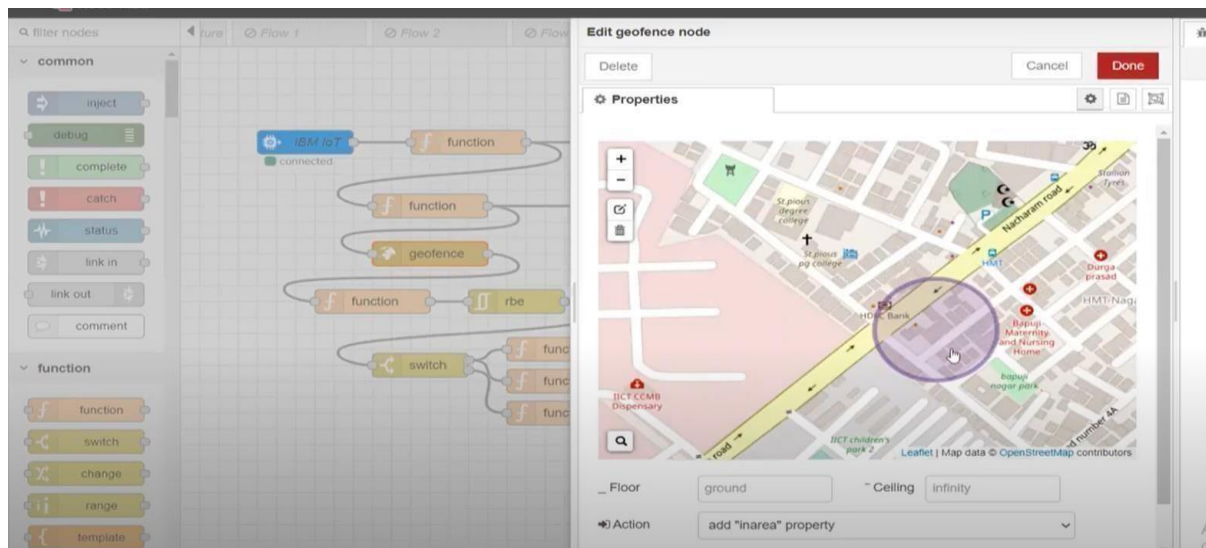


Step 4: Create the geo-fence area in the map.

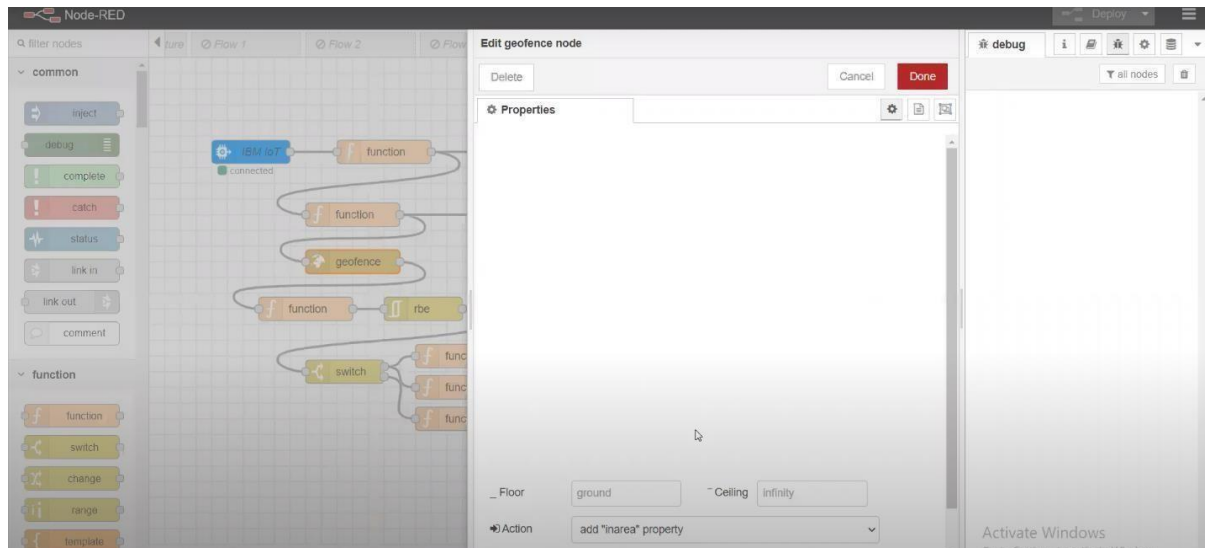
Step



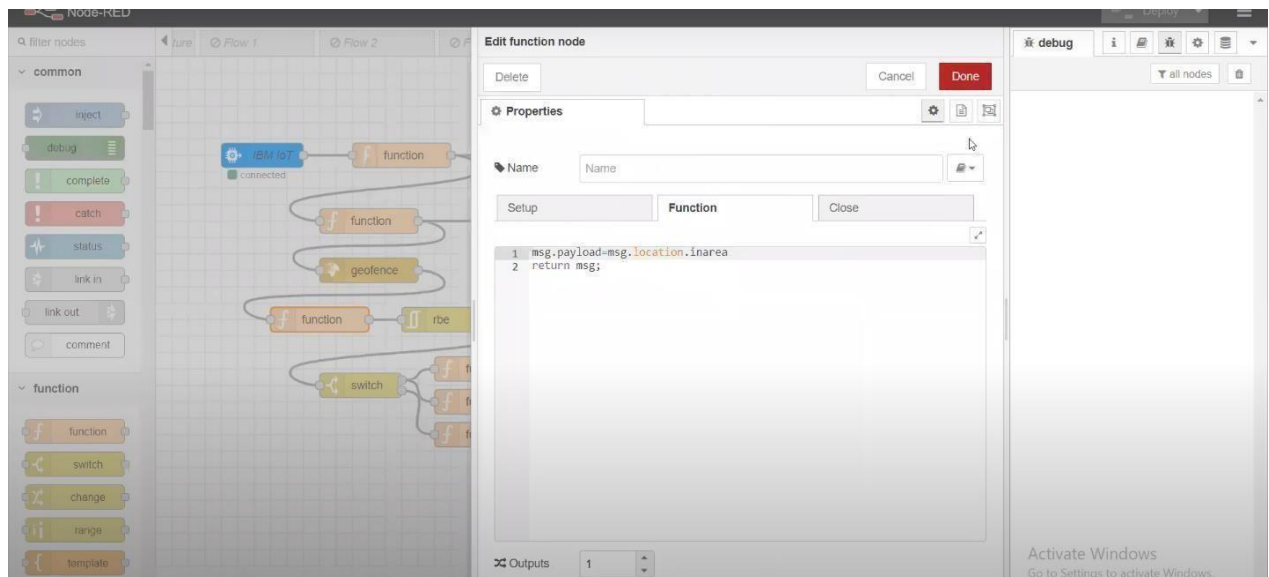
5: Create geo-fence in a particular area.



Step

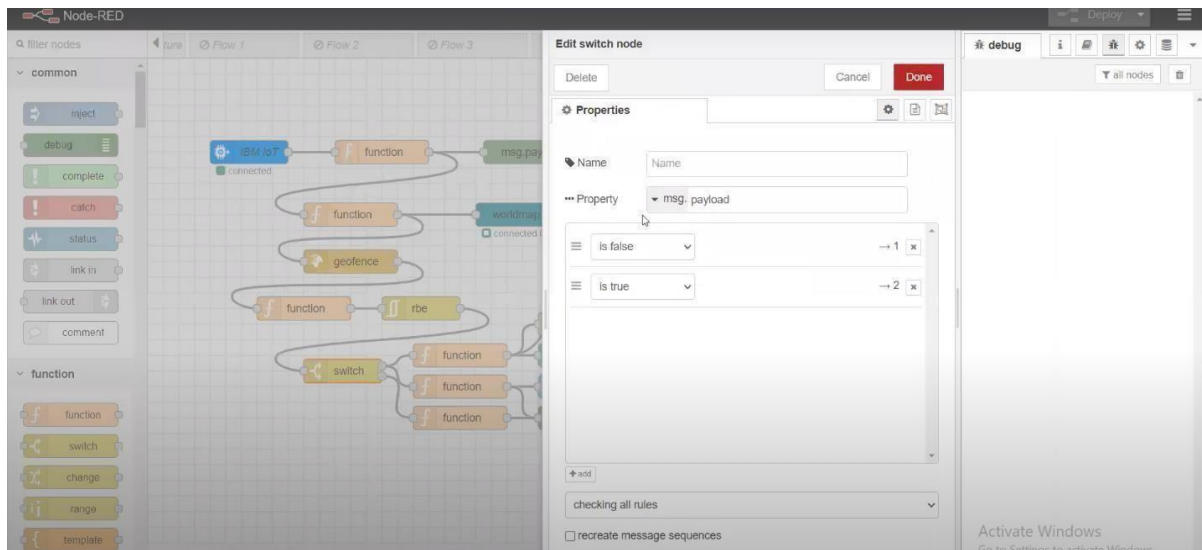


Step 7: Select the message payload.

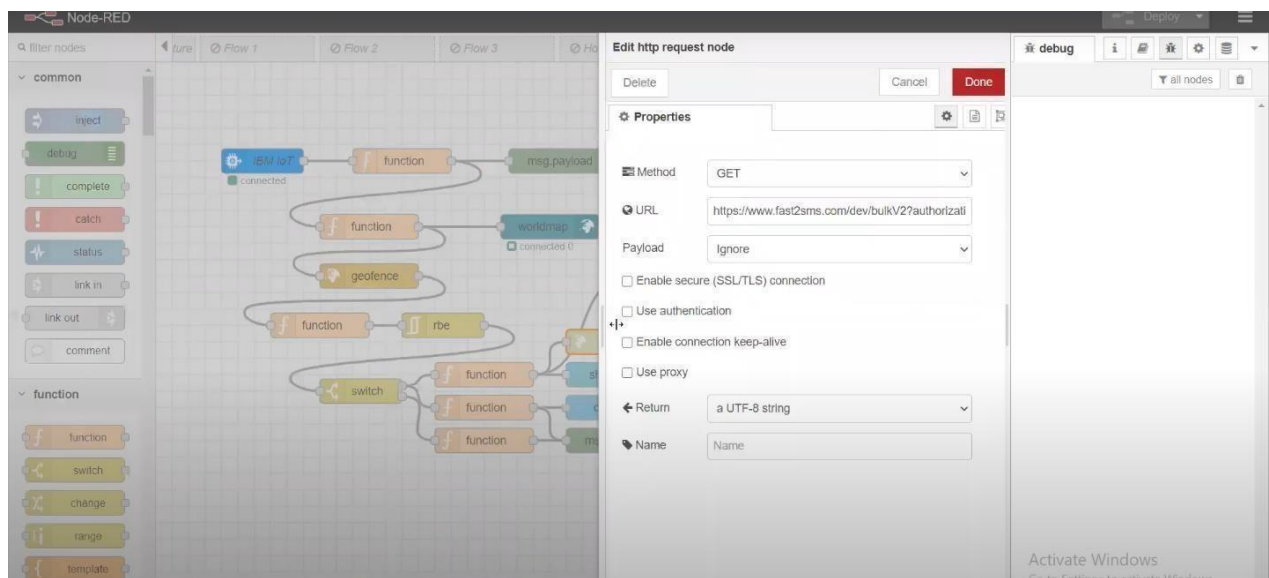


Step 8: To identify the person in area.

Step



9: Select the http request to send message to parent or guardian.



Step 10: For sending the message with time.

Step

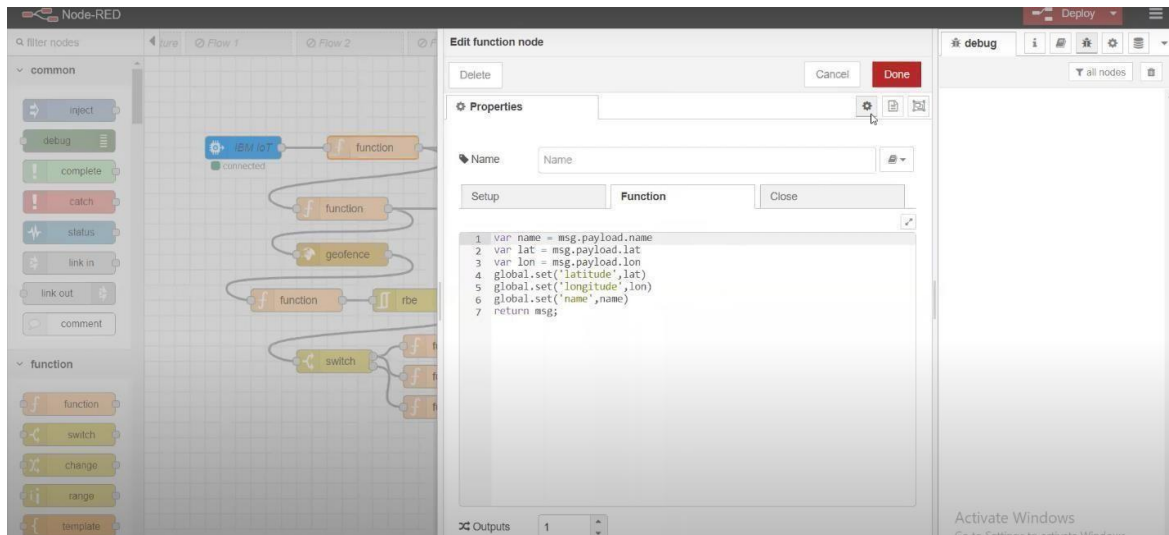
The screenshot displays the Node-RED web interface. On the left, the 'common' and 'function' node palettes are visible. The main workspace shows a flow starting with an 'IBM IoT' node (labeled 'connected'), followed by a 'function' node, then another 'function' node, a 'geofence' node, and finally a 'function' node connected to an 'rbe' node. A 'switch' node is also present in the flow. The 'Edit function node' dialog is open, showing the following JavaScript code:

```
1 var d = new Date();
2
3 var utc = d.getTime() + (d.getTimezoneOffset() * 60000);
4
5 var offset = 5.5; // This is the offset for UTC+3, in your case (UTC+1)
6
7 newDate = new Date(utc + (3600000*offset));
8
9 msg.payload = {
10   "message": "Exit",
11   "time": newDate.toLocaleString(),
12   "name": global.get('name'), 1
13   "lat": global.get('latitude'),
14   "lon": global.get('longitude')
15 };
16
17 return msg;
```

The 'Properties' tab is active, showing a 'Name' field and 'Setup', 'Function', and 'Close' buttons. The 'debug' console on the right is empty. An 'Activate Windows' watermark is visible in the bottom right corner.

Step

10: Click show dialog for notifying the popup alert.



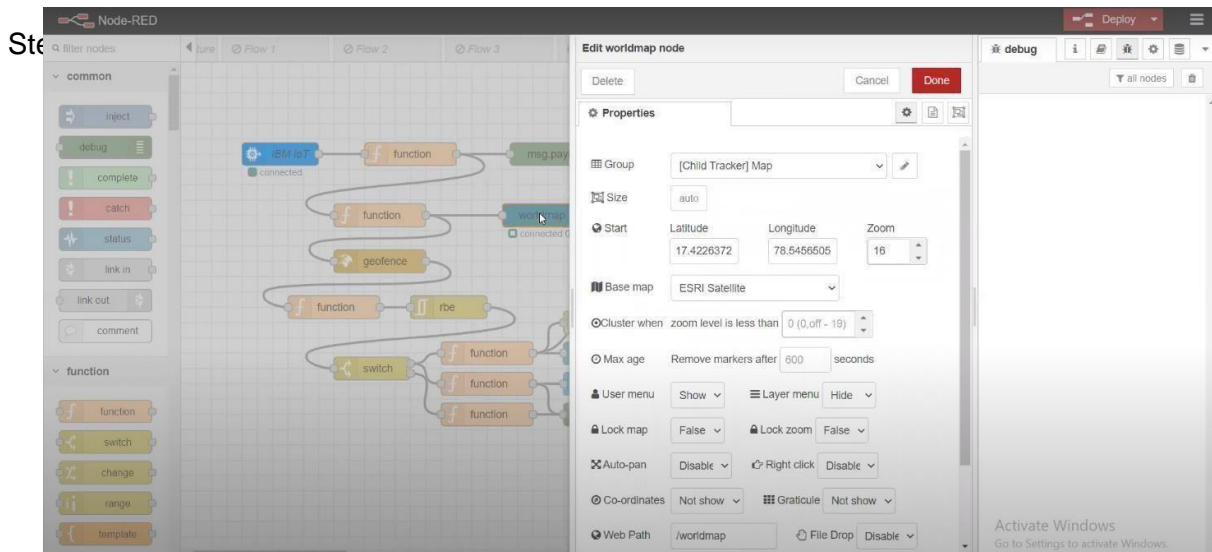
Step

The screenshot displays the Node-RED web interface. On the left, the 'common' and 'function' node palettes are visible. The central workspace shows a flow diagram with nodes including 'msg:toT', 'function', 'msg:payload', 'worldmap', 'geofence', 'rbe', and a 'switch' node. On the right, the 'Edit notification node' configuration panel is open. It features a 'Delete' button, 'Cancel', and 'Done' buttons. The 'Properties' section includes a 'Layout' dropdown set to 'OK / Cancel Dialog', a 'Send to all browser sessions' checkbox, a 'Default action label' field with 'OK', a 'Secondary action label' field with '(optional label for Cancel button)', and an 'Accept raw HTML/JavaScript input in msg.payload to format popup' checkbox. The 'Topic' field contains '[msg.topic]' and the 'Name' field contains 'Name'. A note at the bottom states: 'Note: checking Accept raw HTML/JavaScript can allow injection of code. Ensure the input comes from trusted sources.' The rightmost sidebar shows a 'debug' tab and a list of nodes.

Step

Step 11: Create another payload and to pass the data to geo-fence and world map.

12: Click the world map to see the location.

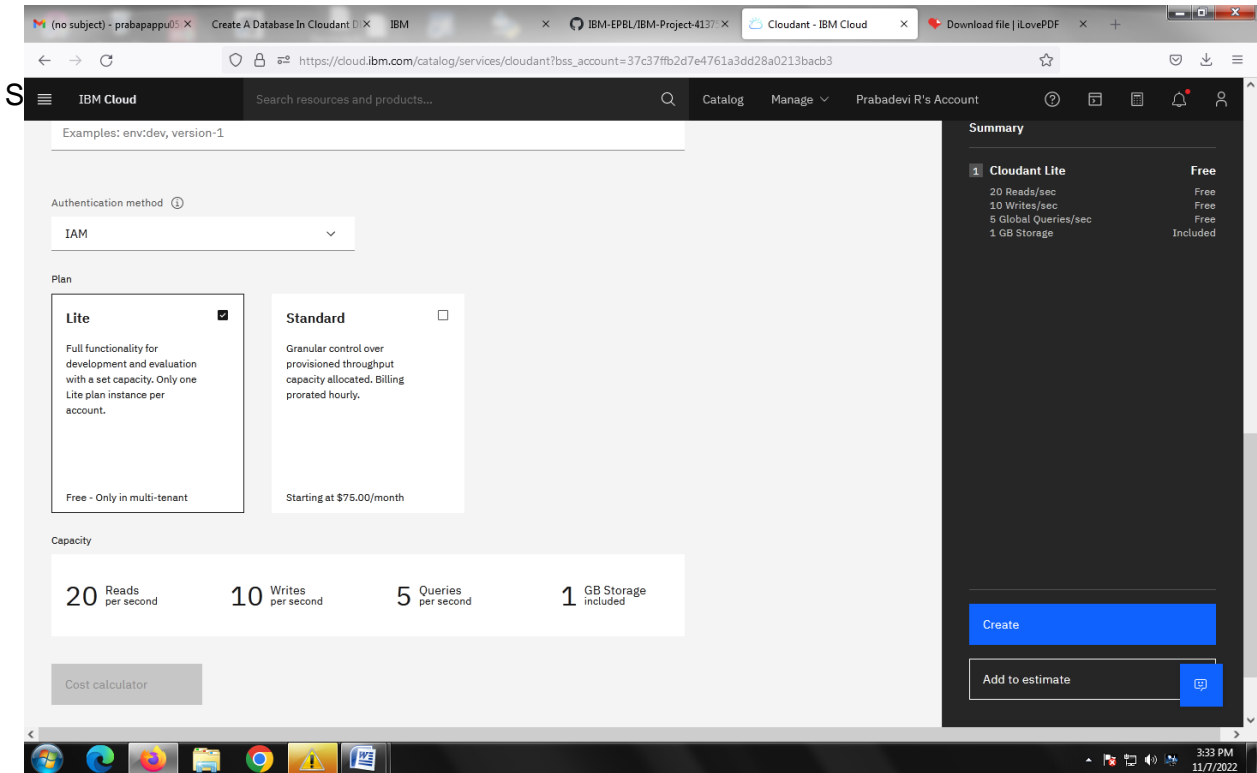


Create A Database In Cloudant DB

Aim: To create a database in Cloudant DB to store location data.

Steps followed:

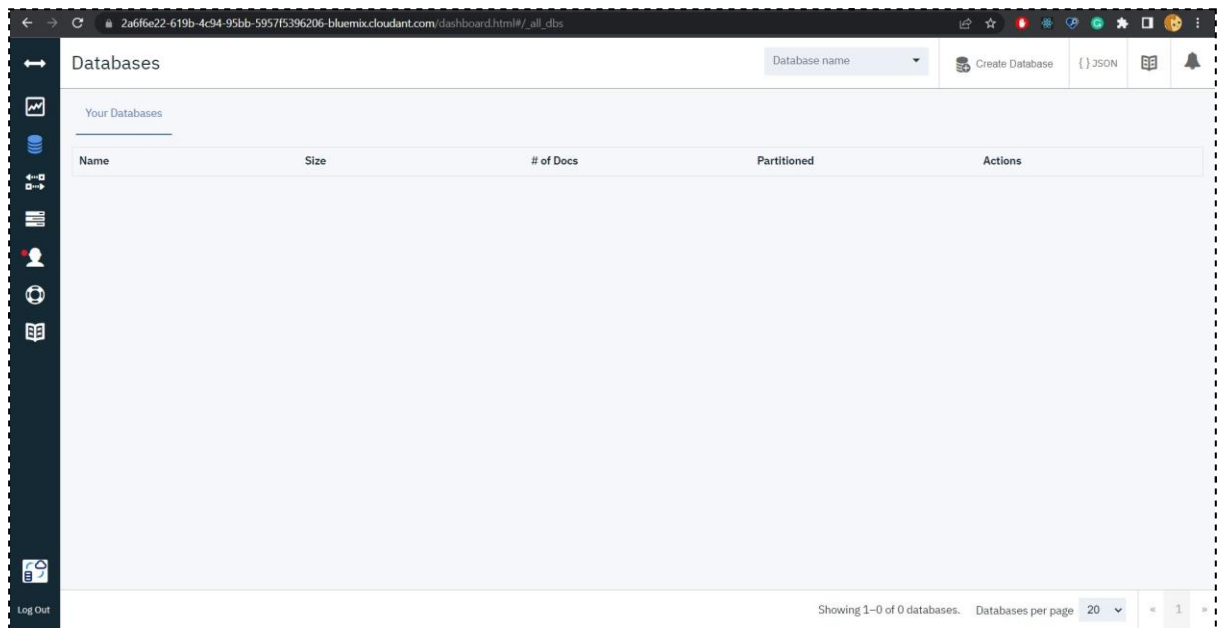
- Logged in to IBM Cloud account
- Navigated to `./resources`
- Clicked on the "Create Resource +" button
- Searched for "Cloudant"
- Chose the "Lite Version" and clicked on "Create"



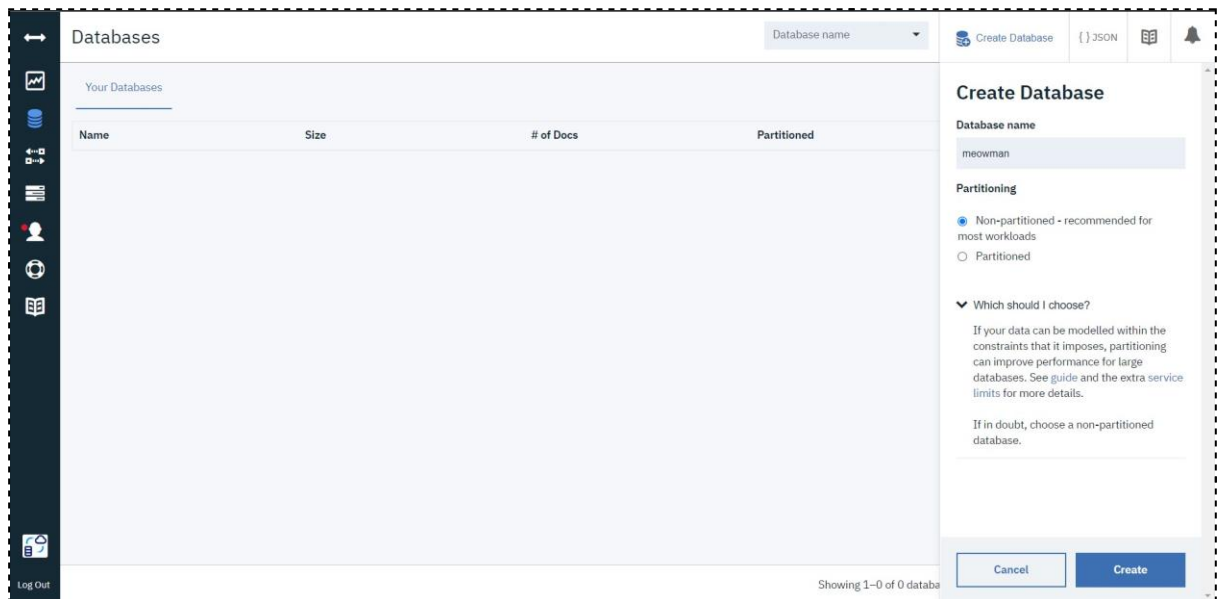
- The Cloudant database resource was created successfully

- Clicked on Launch Dashboard

Step

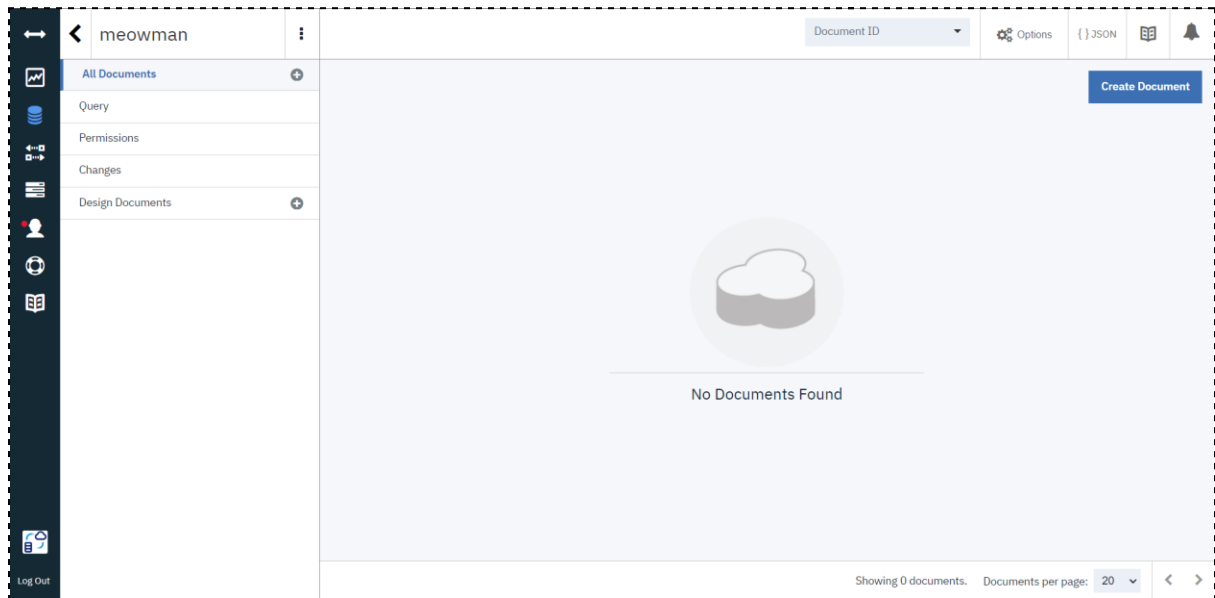


- Clicked on "Create Database". Entered "PRABADEVI" as the databasename and the "Non-partitioned" option



- The database “PRABADEVI” was created successfully

Step



Result:

A database to store the location data was created successfully on Cloudant DB