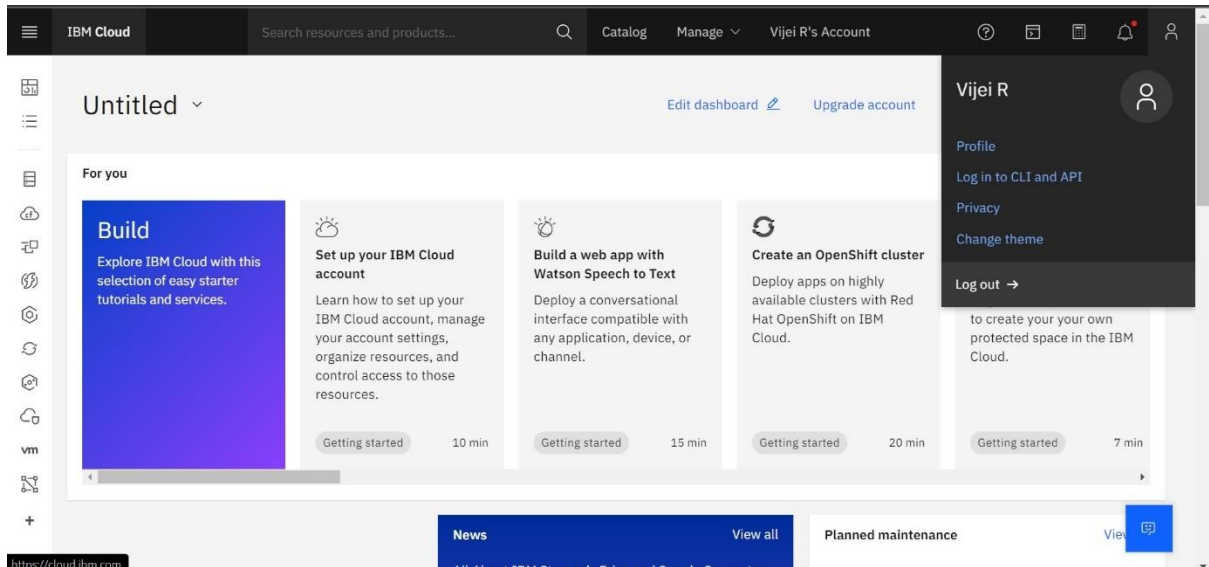


Create Node-RED Service

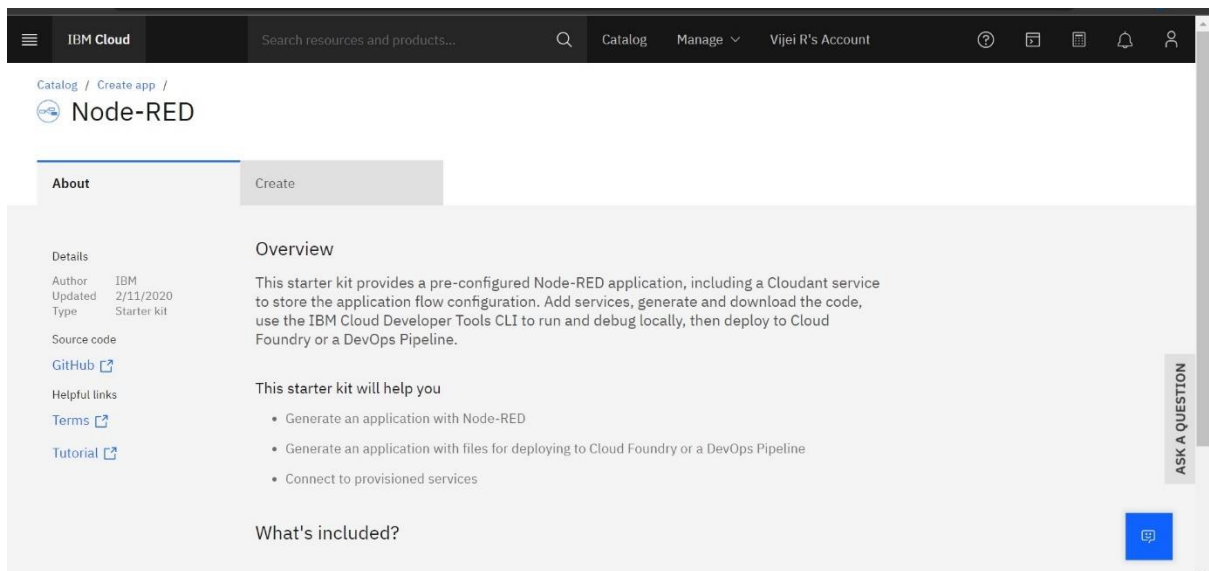
CREATING NODE-RED IN IBM CLOUD

Team ID	PNT2022TMID44878
Project Name	SMART SOLUTIONS FOR RAILWAYS

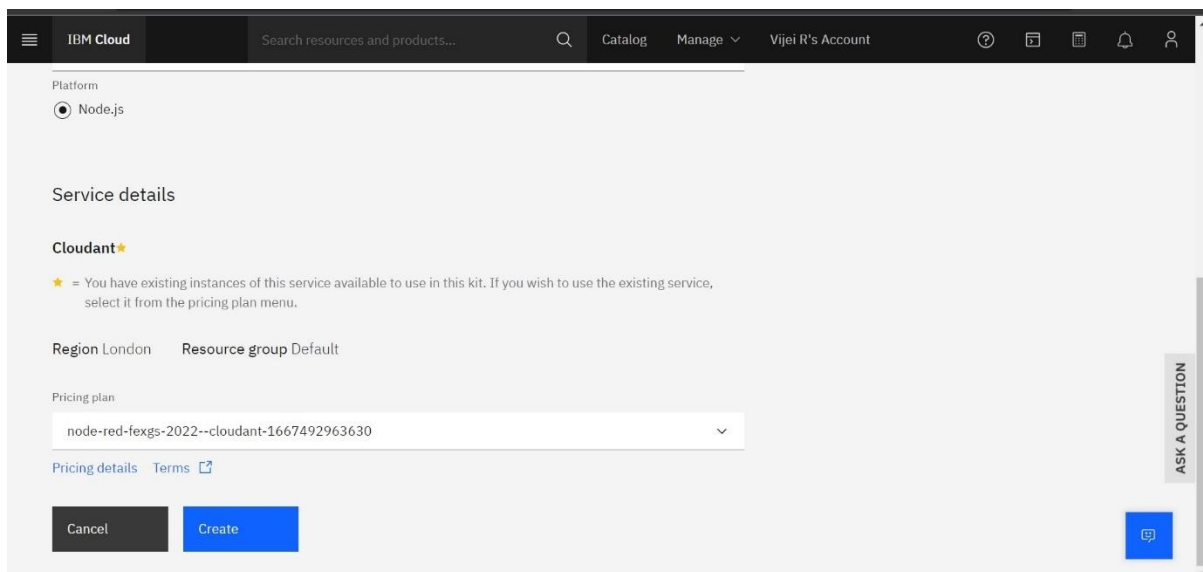
STEP 1: Open IBM cloud:



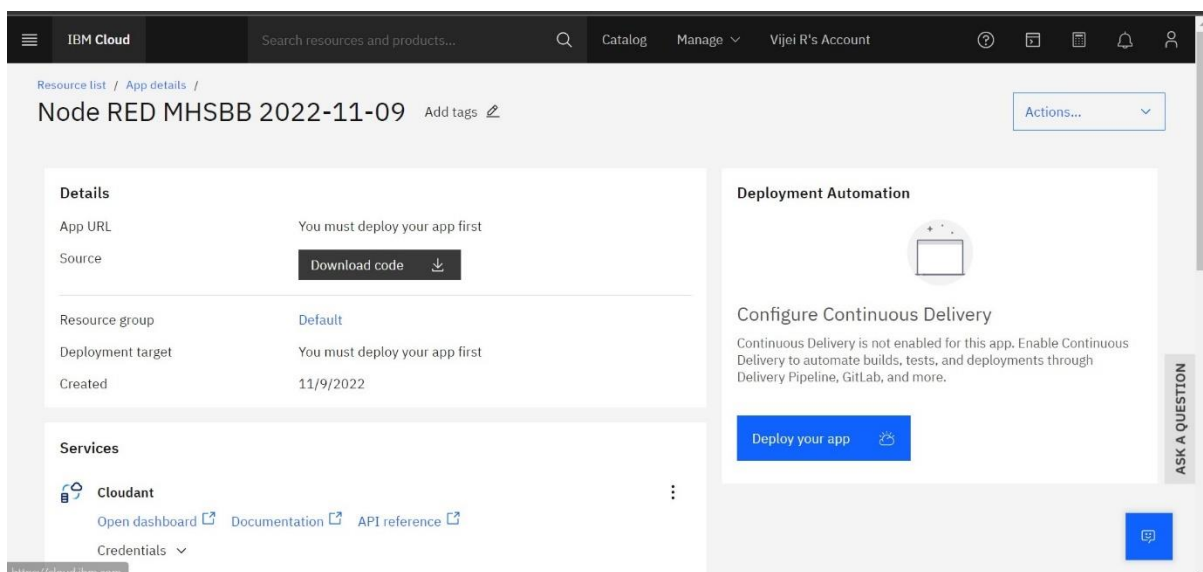
STEP 2: Go to CatLog and search for node red app and open it:



STEP 3: Enter the app name, location and select the plan and click on create:



STEP 4: click on deploy your app button:



STEP 5: In deployment automation select cloud foundry and click on create.org:

IBM Cloud

Search resources and products...

Catalog

Manage

Vijei R's Account

Resource list / App details /

Node RED MHSBB 2022-11-09

Select the deployment target

Configure the DevOps toolchain

Deployment Automation

Select your deployment target and configure your DevOps toolchain. After you click **Create**, the toolchain is created, and the deployment process is started automatically.

Deployment target

Kubernetes Service
 IBM

Deploy, scale, and manage your containerized application workloads to highly available clusters.

Red Hat OpenShift
 IBM

Deploy your apps on highly available clusters that come installed with Red Hat OpenShift on IBM Cloud.

Cloud Foundry
 IBM

Deploy and run your applications without managing servers or clusters. A Lite plan is available for quick and easy deployment.

Getting started with apps

Step 1. Select the deployment target

Select your deployment target, and then provide the configuration information.

IBM Cloud Foundry

Cloud Foundry is the premier industry standard Platform-as-a-Service (PaaS) that ensures fast, easy, and reliable deployment of cloud-native apps. Cloud Foundry ensures that the build and deploy aspects of coding remain carefully coordinated with any attached services — resulting in quick, consistent and reliable iterating of applications. Cloud Foundry has a Lite plan that allows quick deployments for testing purposes.

Before you begin

- If your account doesn't have a Cloud

STEP 6: click on create button and enter the name and create a space:

IBM Cloud

Search resources and products...

Catalog

Manage

Vijei R's Account

Account

Account resources

Resource groups

Cloud Foundry orgs

Licenses and entitlements

Tags

Dashboards

Account settings

IBM Cloud Shell settings

Notification distribution list

Classic infrastructure

Subscriptions

Audit log

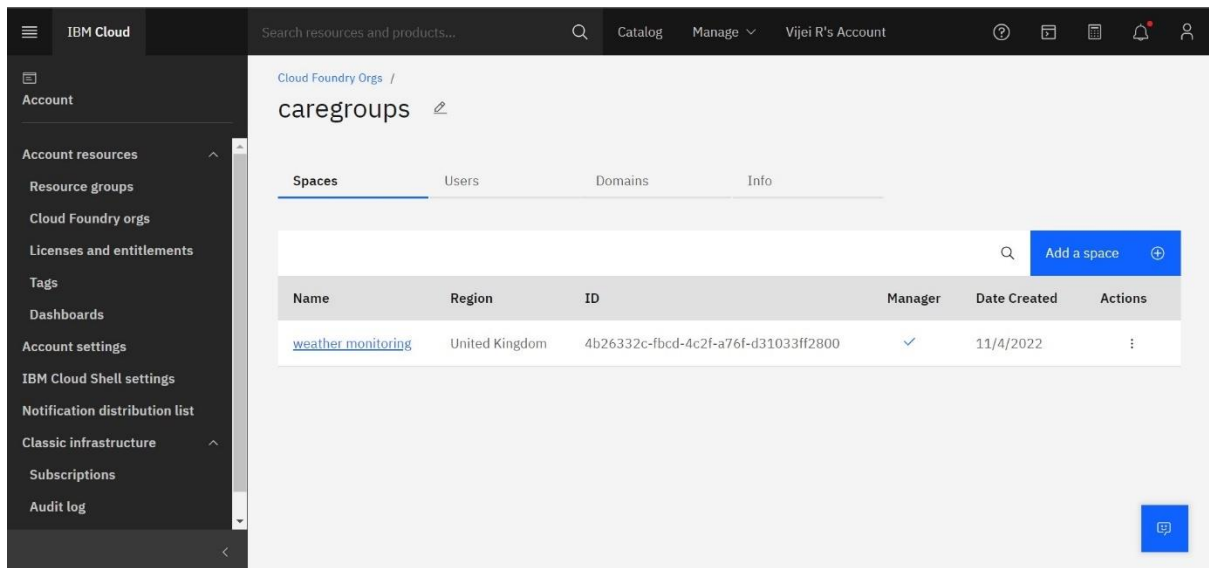
Cloud Foundry Orgs

IBM Cloud Foundry Public is being deprecated. Please see full details.

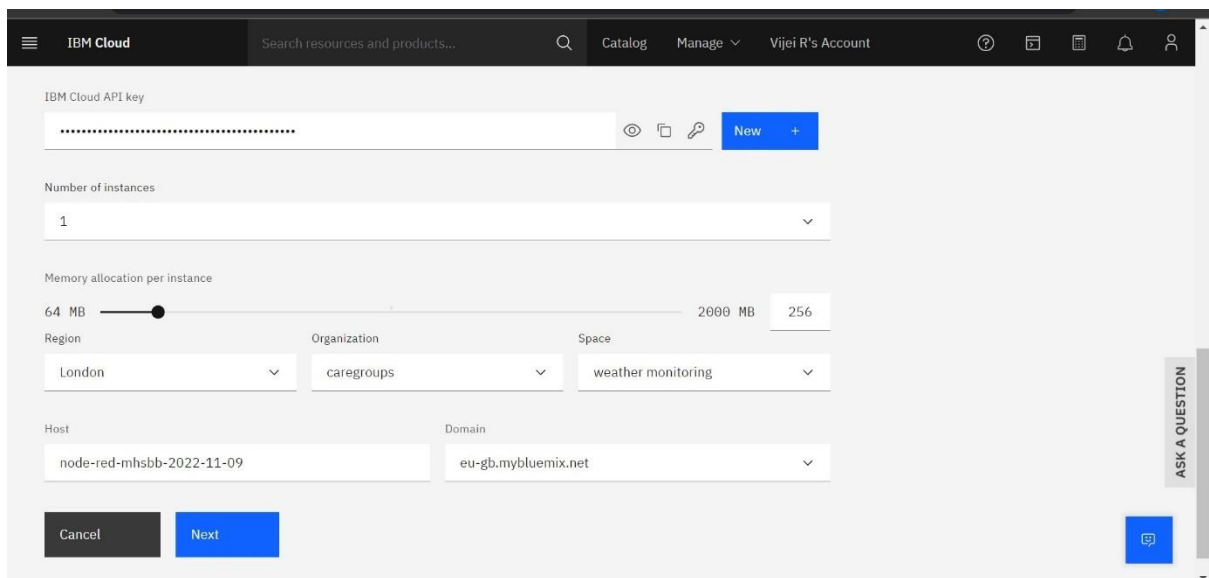
Create

+

Name	Date Created	Spaces	Roles	Actions
caregroups	11/4/2022	1	Manager	



STEP 7: In app development click new on api key and select region and click next:



STEP 8: select the region and click create:

The screenshot shows the IBM Cloud console interface. At the top, there's a navigation bar with the IBM Cloud logo, a search bar, and links to Catalog, Manage, and the user's account (Vijei R's Account). Below the navigation bar, the breadcrumb trail shows 'Resource list / App details /'. The main heading is 'Node RED XSIWG 2022-11-09'. There are two tabs: 'Select the deployment target' (active) and 'Configure the DevOps toolchain'. The 'Configure the DevOps toolchain' tab is selected, showing instructions to 'Give your toolchain a name and select the region to create your toolchain in.' Below this, there's a form with two fields: 'DevOps toolchain name' (containing 'NodeREDXSIWG2022-11-09') and 'Region' (a dropdown menu set to 'London'). At the bottom of the form are 'Back' and 'Create' buttons. On the right side, there's a sidebar titled 'Getting started with apps' with a section 'Step 2. Configure the DevOps toolchain' containing a list of steps: 1. Provide a name for your toolchain. 2. Select the region where your toolchain is created. 3. Select the resource group that has access to your new toolchain. 4. After you're finished with your selection, click Create. There's also an 'ASK A QUESTION' button on the far right.

STEP 9: Wait till you get the success in ci-pipeline and app URL is generated:

The screenshot shows the IBM Cloud console interface. At the top, there's a navigation bar with the IBM Cloud logo, a search bar, and links to Catalog, Manage, and the user's account (Vijei R's Account). Below the navigation bar, the breadcrumb trail shows 'Resource list / App details /'. The main heading is 'Node RED XSIWG 2022-11-09' with an 'Add tags' link and an 'Actions...' dropdown menu. The 'Details' section shows a table with the following information: App URL (You must deploy your app first), Source (https://eu-gb.git.cloud.ibm.com/vijei.r/NodeREDXSIWG2022-1...), Resource group (Default), Deployment target (You must deploy your app first), and Created (11/9/2022). Below the details section, there's a 'Services' section with a 'Cloudant' service listed. On the right side, there's a 'Deployment Automation' section showing the 'Name' (NodeREDXSIWG2022-11-09), 'Location' (London), and 'Tool integrations' (Git, Jenkins, Docker). Below this, there's a 'Delivery Pipelines' section showing two pipelines: 'pr-pipeline' and 'ci-pipeline', both with a status of 'No stages detected'. There's also an 'ASK A QUESTION' button on the far right.

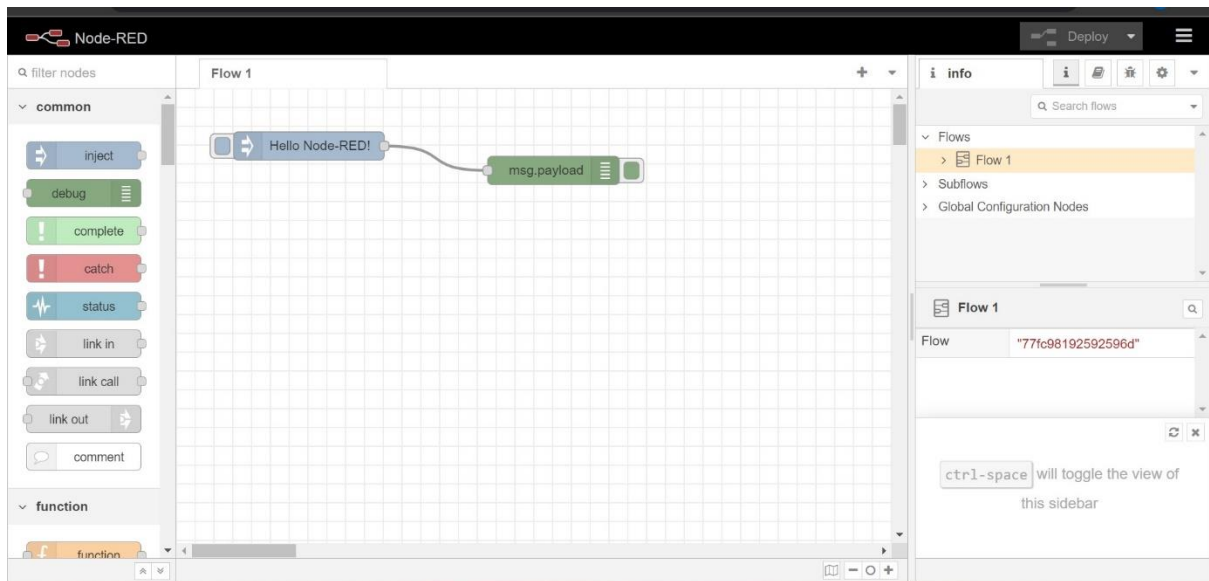
STEP 10: Now click on the generated APP URL:

The screenshot shows the IBM Cloud console interface. At the top, there's a navigation bar with 'IBM Cloud', a search bar, and user account information. Below this, the breadcrumb 'Resource list / App details /' is visible. The main heading is 'Node RED XSIWG 2022-11-09' with an 'Add tags' link. To the right is an 'Actions...' dropdown. The content is divided into three main sections: 'Details', 'Services', and 'Deployment Automation'. The 'Details' section lists 'App URL' as 'https://node-red-xsiwg-2022-11-09.eu-gb.mybluemix.net', 'Source' as 'https://eu-gb.git.cloud.ibm.com/vijei.r/NodeREDXSIWG2022-1...', 'Resource group' as 'Default', 'Deployment target' as 'Node RED XSIWG 2022-11-09', and 'Created' as '11/9/2022'. The 'Services' section shows 'Cloudant' with links for 'Open dashboard', 'Documentation', and 'API reference', and a 'Credentials' dropdown. The 'Deployment Automation' section shows 'Name' as 'NodeREDXSIWG2022-11-09', 'Location' as 'London', and 'Tool integrations' with icons for GitHub, Docker, and Jenkins. Below this, 'Delivery Pipelines' are listed: 'pr-pipeline' with status 'No stages detected', and 'ci-pipeline' with status 'Success'. A vertical 'ASK A QUESTION' button is on the right edge.

STEP 11 : You will be redirected to your node-red on IBM cloud page:

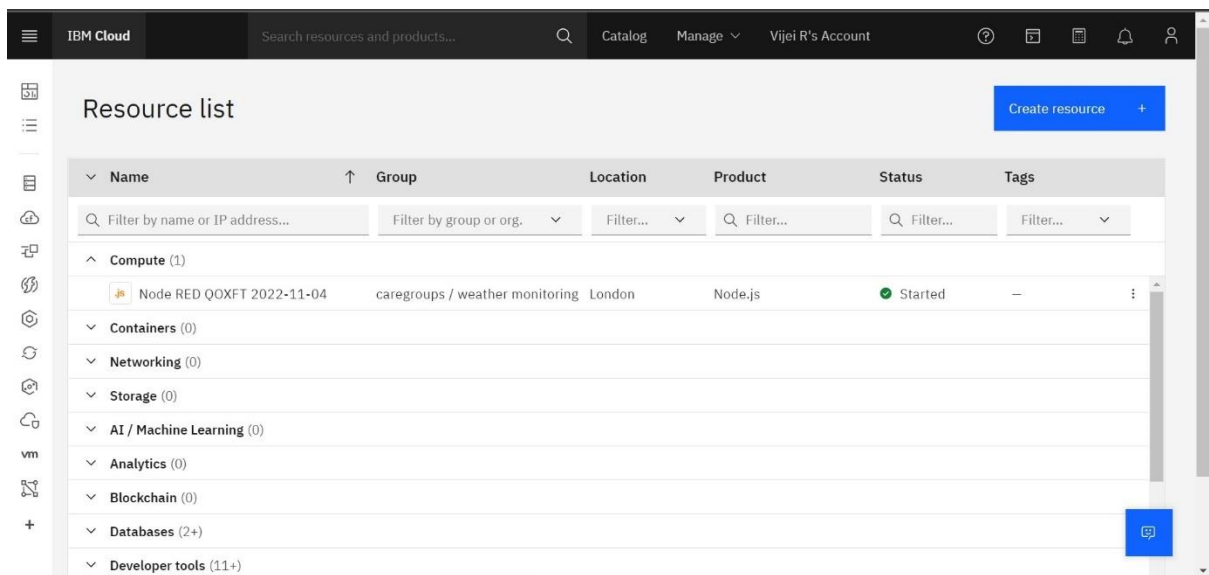
The screenshot shows the 'Node-RED on IBM Cloud' landing page. The header is 'Node-RED on IBM Cloud'. The main content area has a large red background with the text 'Node-RED' and 'Flow-based programming for the Internet of Things'. Below this, there's a light gray section with text: 'Node-RED is a programming tool for wiring together hardware devices, APIs and online services in new and interesting ways.', 'This instance is running as an IBM Cloud application, giving it access to the wide range of services available on the platform.', and 'More information about Node-RED, including documentation, can be found at nodered.org.' To the right of this text is a button that says 'Go to your Node-RED flow editor' and a link that says 'Learn how to customise Node-RED'.

STEP 12: Click on node-red flow editor and you will be redirected to your node-red workspace:

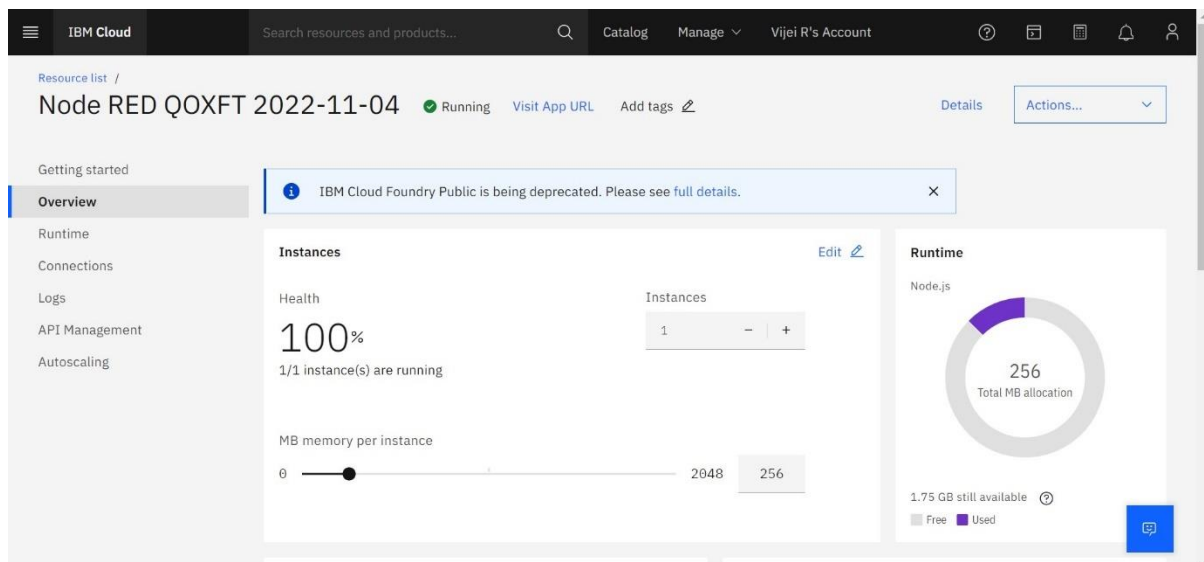


DIRECTING TO CREATED NODE-RED WORKSPACE

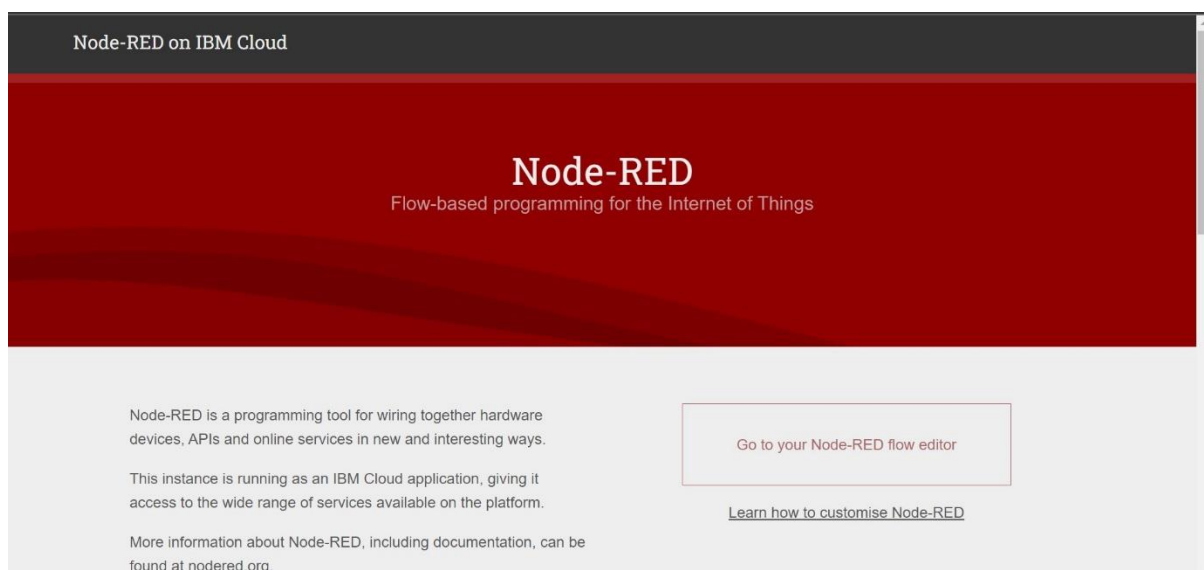
STEP 13: In resource select compute and click on node-red:



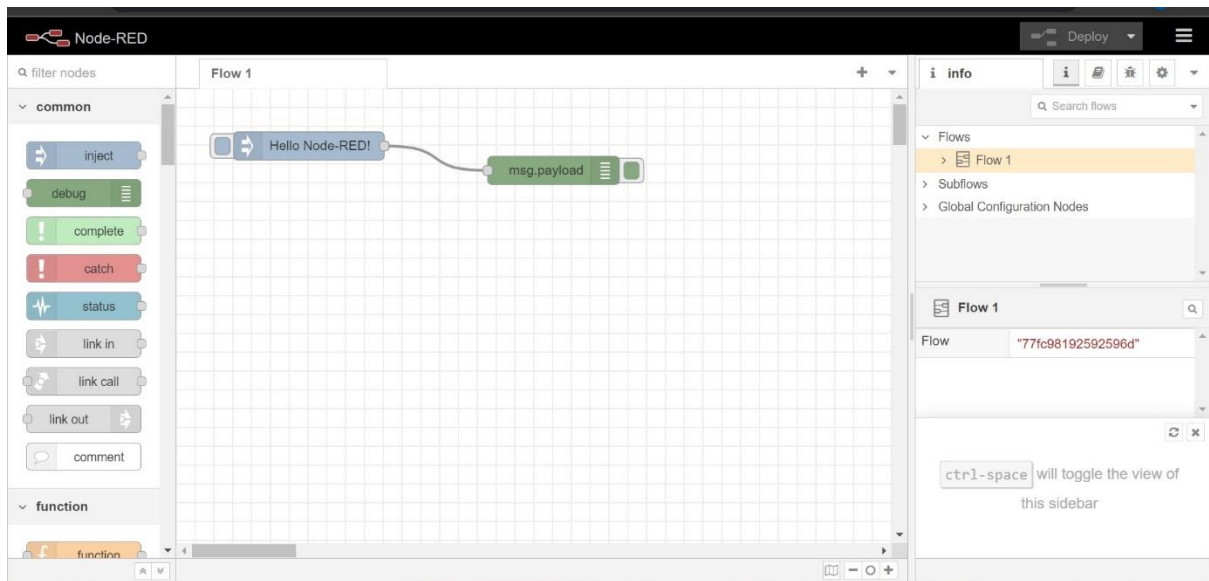
STEP 14: click on visit app URL to be redirected to node red:



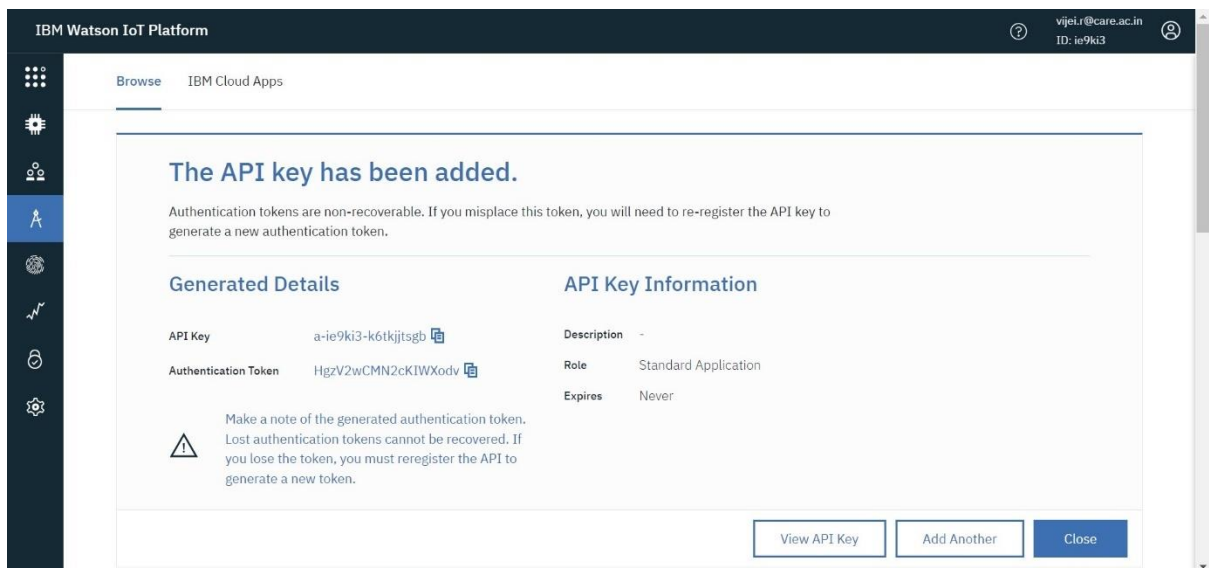
STEP 15: Click on go to your NODE-RED flow editor button:



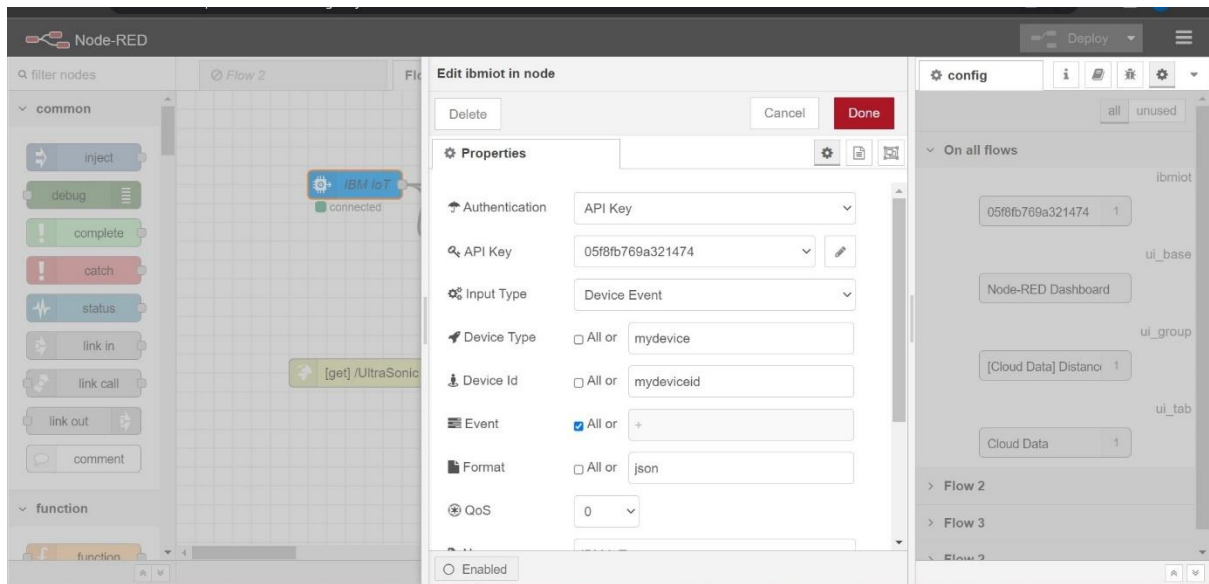
STEP 16: You will be redirected to the node red flow editor:



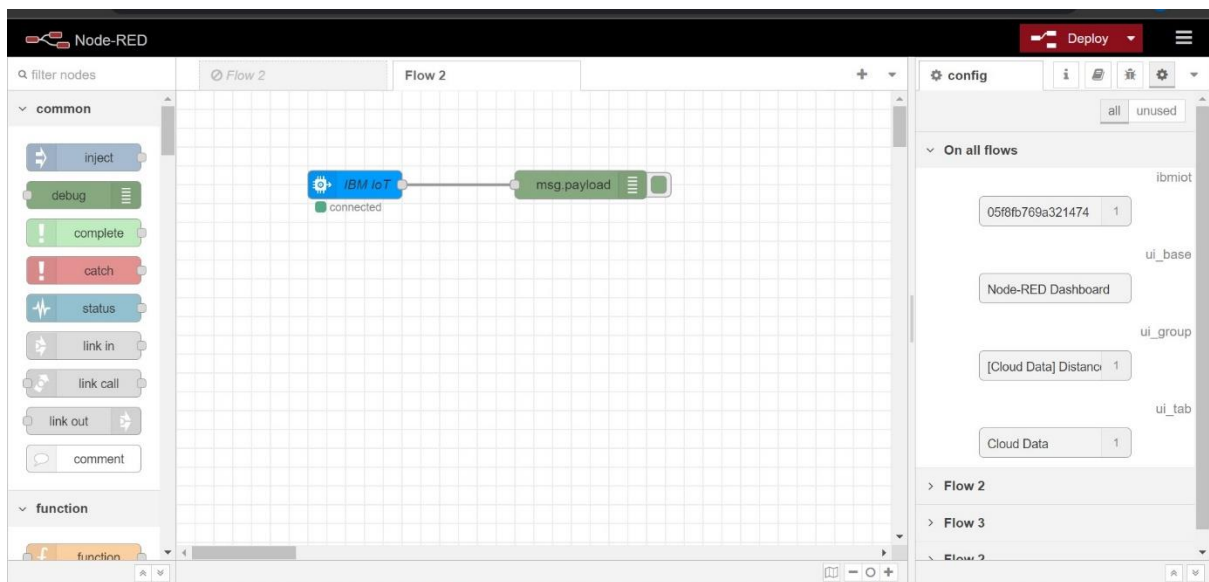
STEP 17: Generating API key and Authentication token:



STEP 18: Edit IBM IOT in node:



STEP 19: Connect IBM IOT in and debug 1 and deploy:



STEP 20: Edit gauge node (the gauge nodes named as latitude, longitude and available _seats as fig1, fig2, fig3):

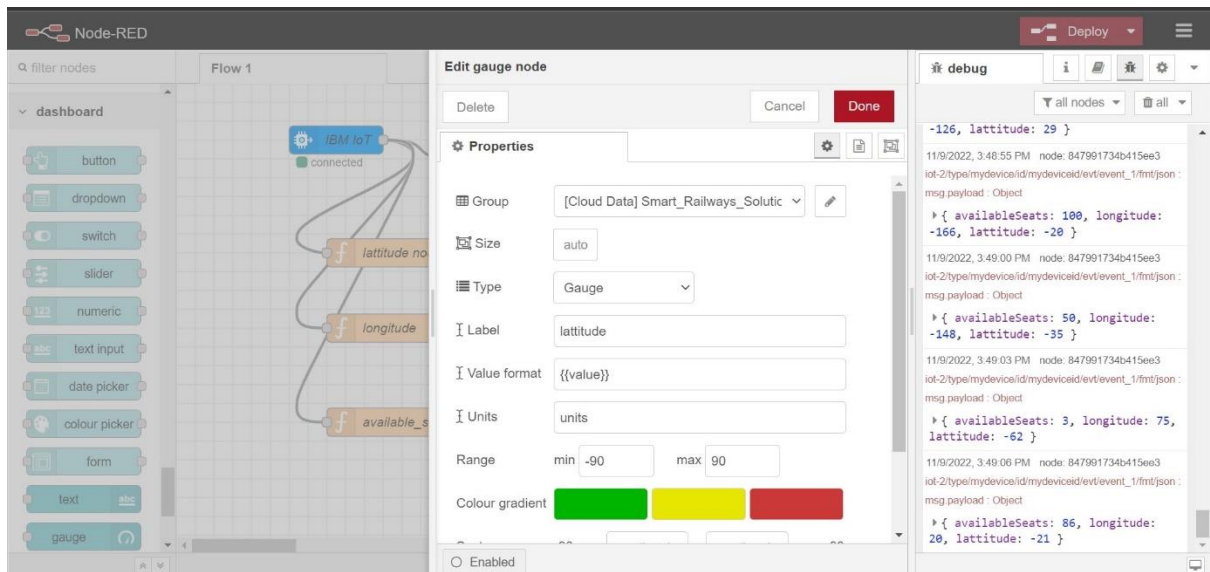


FIG 1

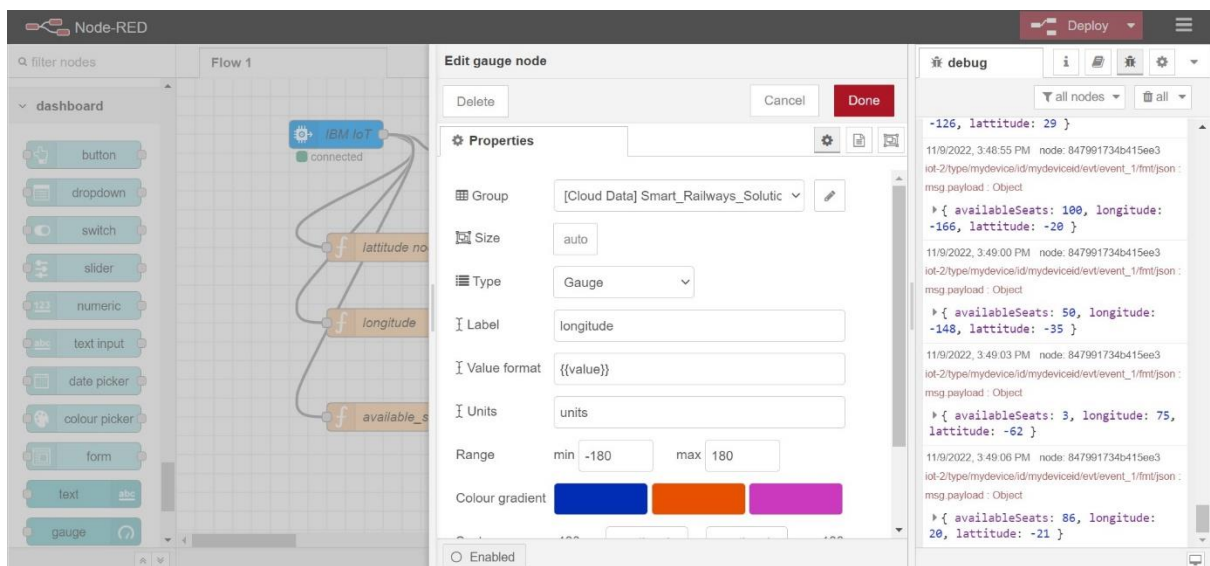


FIG 2

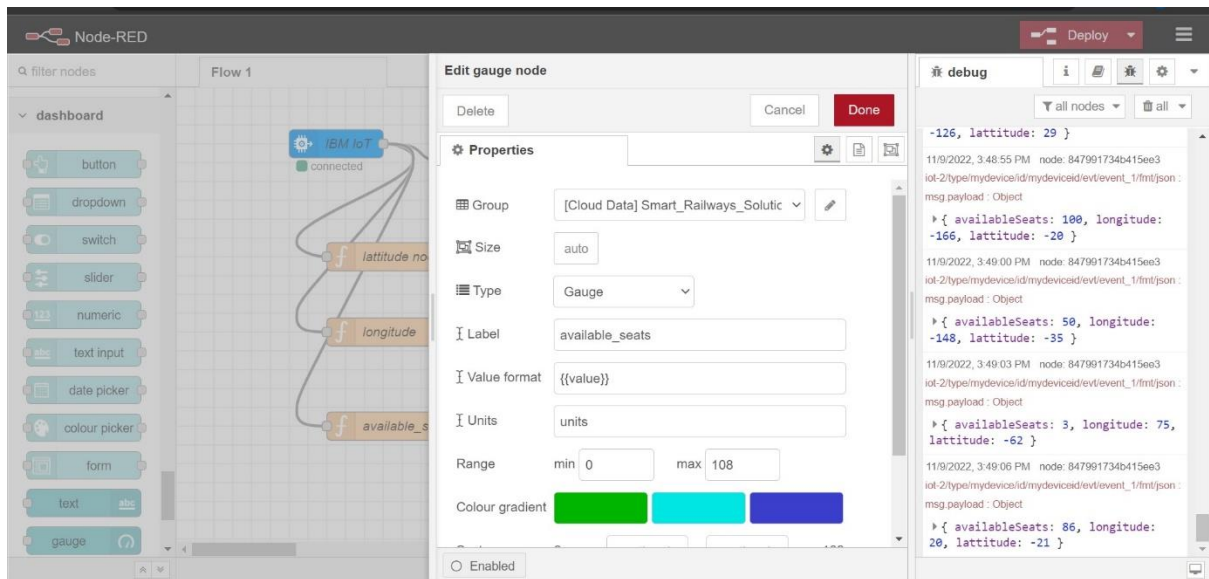
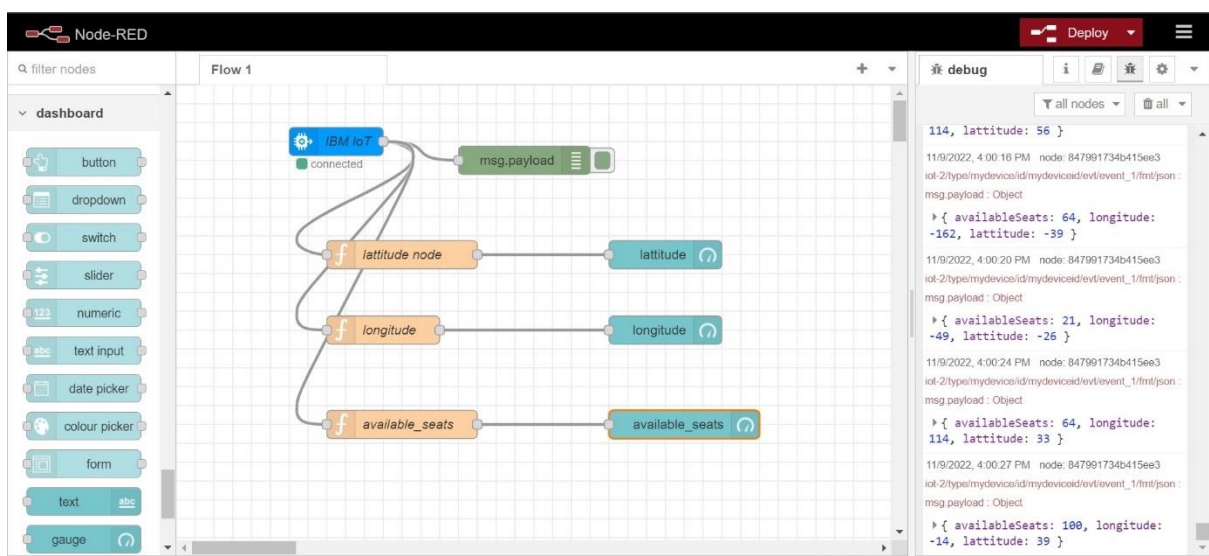


FIG 3

STEP 21: Generate debug message from IBM Watson IoT Platform and connect the nodes:



The screenshot displays the IBM Watson IoT Platform interface. On the left, a sidebar contains navigation icons. The main area shows a list of devices under the heading "mydeviceid". A modal window titled "Device Type: mydevice" is open on the right, displaying event details.

Device List:

Event	Value	Format	Last Received
event_1	{"availableSeats":86,"longitude":20,"latitude":-...}	json	a few seconds ago
event_1	{"availableSeats":3,"longitude":75,"latitude":-62}	json	a few seconds ago
event_1	{"availableSeats":50,"longitude":-148,"latitude":...}	json	a few seconds ago
event_1	{"availableSeats":100,"longitude":-166,"latitude":...}	json	a few seconds ago

Device Configuration Modal (Device Type: mydevice):

- Events:** 1
- New event type:** +
- Event type name:** event_1
- Send:** [Button]
- Schedule:** 20 Every Minute
- Payload:** Specify the event payload in the editor window or by uploading a CSV file.
- Payload Editor:**

```
{
  "availableSeats": random(0, 100)
  "longitude": random(-180, 180)
  "latitude": random(-90, 90)
}
```
- Upload a CSV file:** [Link]
- Buttons:** Cancel, Save