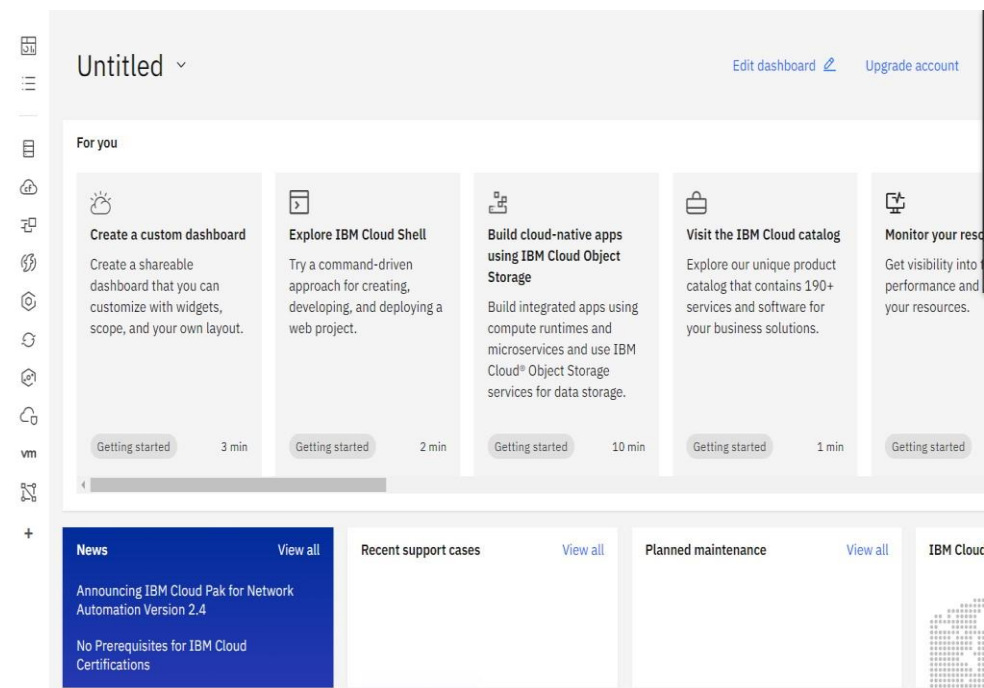


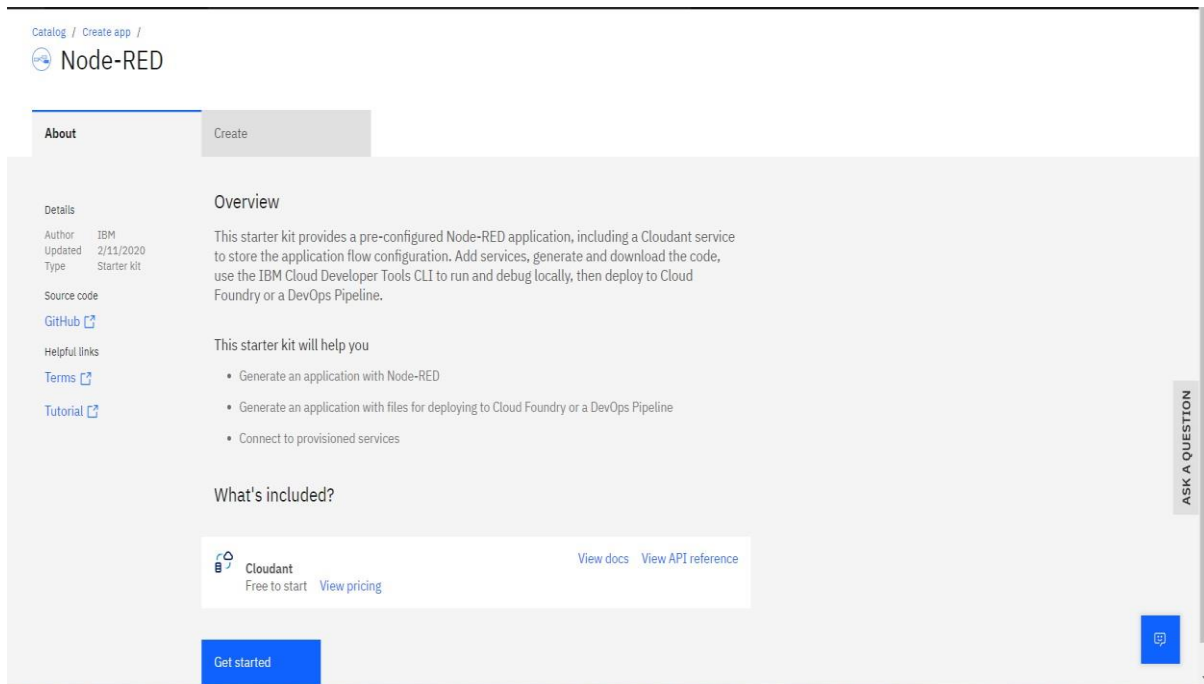
Team ID	PNT2022TMID43868
Project Name	SMART SOLUTIONS FOR RAILWAYS

CREATING NODE-RED IN IBM CLOUD

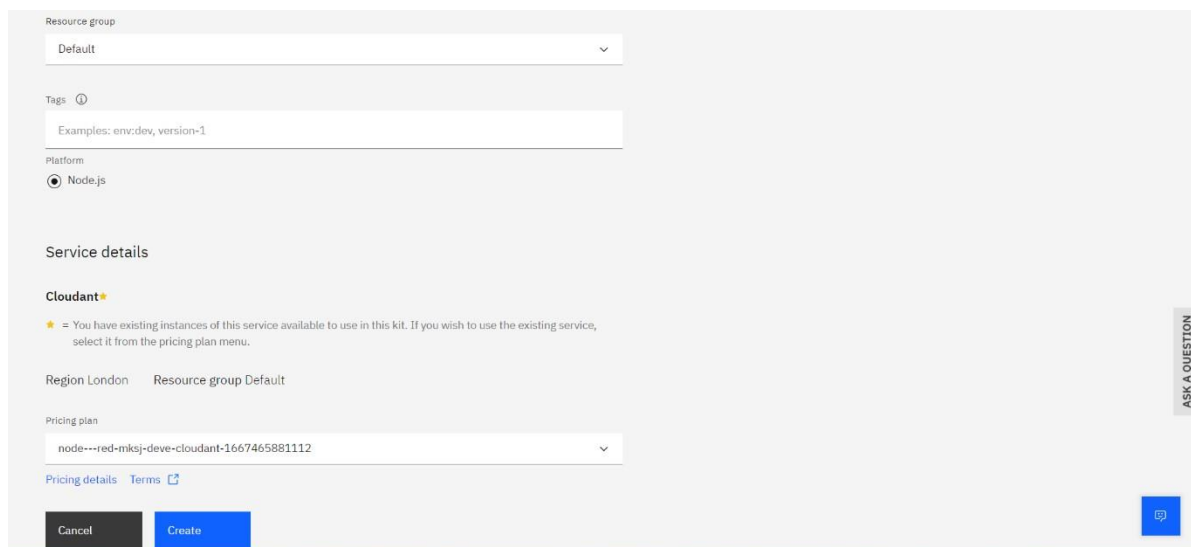
STEP 1: Open IBM cloud:



STEP 2: Go to catalogue 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:

Resource list / App details / Node RED NGHJK 2022-11-04 [Add tags](#)

Actions...

Details

App URL: You must deploy your app first

Source: [Download code](#)

Resource group: Default

Deployment target: You must deploy your app first

Created: 11/4/2022

Services

Cloudant

[Open dashboard](#) [Documentation](#) [API reference](#)

[Credentials](#)

[Connect existing services](#) [Create service](#)

Deployment Automation

Configure Continuous Delivery

Continuous Delivery is not enabled for this app. Enable Continuous Delivery to automate builds, tests, and deployments through Delivery Pipeline, GitLab, and more.

[Deploy your app](#)

Getting started quickly

Configuring your app

To connect services and DevOps toolchains to your app:

1. Use the **Services** card to connect a service to your app. Select an existing service instance, or create a new one. [Learn more.](#)
2. If you want to view the code before your app is deployed, click **Download code** to obtain the .zip file.
3. Click **Deploy your app** in the **Deployment Automation** card to select the deployment target and configure the Continuous Delivery service. The deployment begins automatically.
4. After the deployment begins, you can view the status of the deployment, modify your app, view your repo, or view the app's URL.
5. If you make any changes to your app, be

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

Resource list / App details / Node RED NGHJK 2022-11-04

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.

Code Engine
IBM

Run your app, job, or container on a managed serverless platform. Auto-scale workloads, and pay only for the resources that you consume.

IBM Cloud API key

IBM Cloud API key [New](#)

The value is required.

<https://cloud.ibm.com>

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 Foundry org, you must create one. [Create org.](#)

Steps

1. Select the number of instances, memory allocation, **region**, **org**, and **space**.

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

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

Company Information

Cloud Foundry Orgs

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

Create

Name	Date Created	Spaces	Roles	Actions
monish16	11/3/2022	1	Manager	

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

Company Information

Cloud Foundry Orgs / monish16

Spaces Users Domains Info

Add a space

Name	Region	ID	Manager	Date Created	Actions
smart solutions for railways	United Kingdom	99278857-98d2-4e07-95f0-332b01db3895	✓	11/3/2022	

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

workloads to highly available clusters.

installed with Red Hat OpenShift on IBM Cloud.

servers or clusters. A Lite plan is available for quick and easy deployment.

platform. Auto-scale workloads, and pay only for the resources that you consume.

IBM Cloud API key

.....

New +

Number of instances

1

Memory allocation per instance

64 MB

2000 MB

256

Region

London

Organization

monish16

Space

smart solutions for railways

Host

node-red-nghkj-2022-11-04

Domain

eu-gb.mybluemix.net

Cancel

Next

ASK A QUESTION

STEP 8: Select the region and click create:

Resource list / App details /

Node RED NGHJKJ 2022-11-04

Select the deployment target

Configure the DevOps toolchain

Getting started with apps

Configure the DevOps toolchain

Give your toolchain a name and select the region to create your toolchain in.

DevOps toolchain name

NodeREDNGHKJ2022-11-04

Accept the default name, or enter a value up to 100 characters.

Region

London

Back

Create

ASK A QUESTION

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

Resource list / App details /

Node RED NGHKJ 2022-11-04 [Add tags](#)

Actions...

Details

App URL	You must deploy your app first
Source	https://eu-gb.git.cloud.ibm.com/monishkumarts/NodeREDNGH...
Resource group	Default
Deployment target	You must deploy your app first
Created	11/4/2022

Services

Cloudant

[Open dashboard](#) [Documentation](#) [API reference](#)

Credentials ▾

[Connect existing services](#) [Create service](#)

Deployment Automation

Name	NodeREDNGHKJ2022-11-04
Location	London
Tool integrations	

Delivery Pipelines

Name	ci-pipeline
Status	No stages detected
Name	pr-pipeline
Status	No stages detected

Getting started quickly

Configuring your app

To connect services and DevOps toolchains to your app:

1. Use the **Services** card to connect a service to your app. Select an existing service instance, or create a new one. [Learn more](#)
2. If you want to view the code before your app is deployed, click **Download code** to obtain the .zip file.
3. Click **Deploy your app** in the **Deployment Automation** card to select the deployment target and configure the Continuous Delivery service. The deployment begins automatically.
4. After the deployment begins, you can view the status of the deployment, modify your app, view your repo, or view the app's URL.
5. If you make any changes to your app, be

ASK A QUESTION

STEP 10: Now click on the generated APP URL:

Resource list / App details /

Node RED NGHKJ 2022-11-04 [Add tags](#)

Actions...

Details

App URL	https://node-red-nghkj-2022-11-04.eu-gb.mybluemix.net
Source	https://eu-gb.git.cloud.ibm.com/monishkumarts/NodeREDNGH...
Resource group	Default
Deployment target	Node RED NGHKJ 2022-11-04
Created	11/4/2022

Services

Cloudant

[Open dashboard](#) [Documentation](#) [API reference](#)

Credentials ▾

[Connect existing services](#) [Create service](#)

Deployment Automation

Name	NodeREDNGHKJ2022-11-04
Location	London
Tool integrations	

Delivery Pipelines

Name	ci-pipeline
Status	Success
Name	pr-pipeline
Status	No stages detected

Getting started quickly

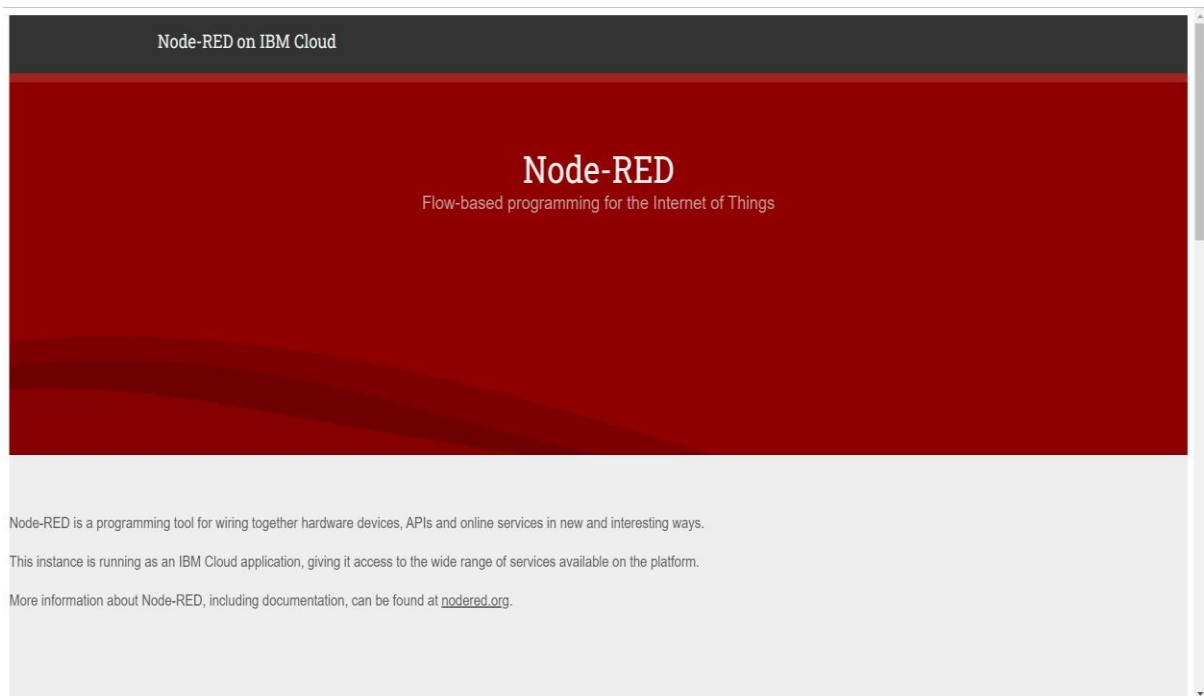
Configuring your app

To connect services and DevOps toolchains to your app:

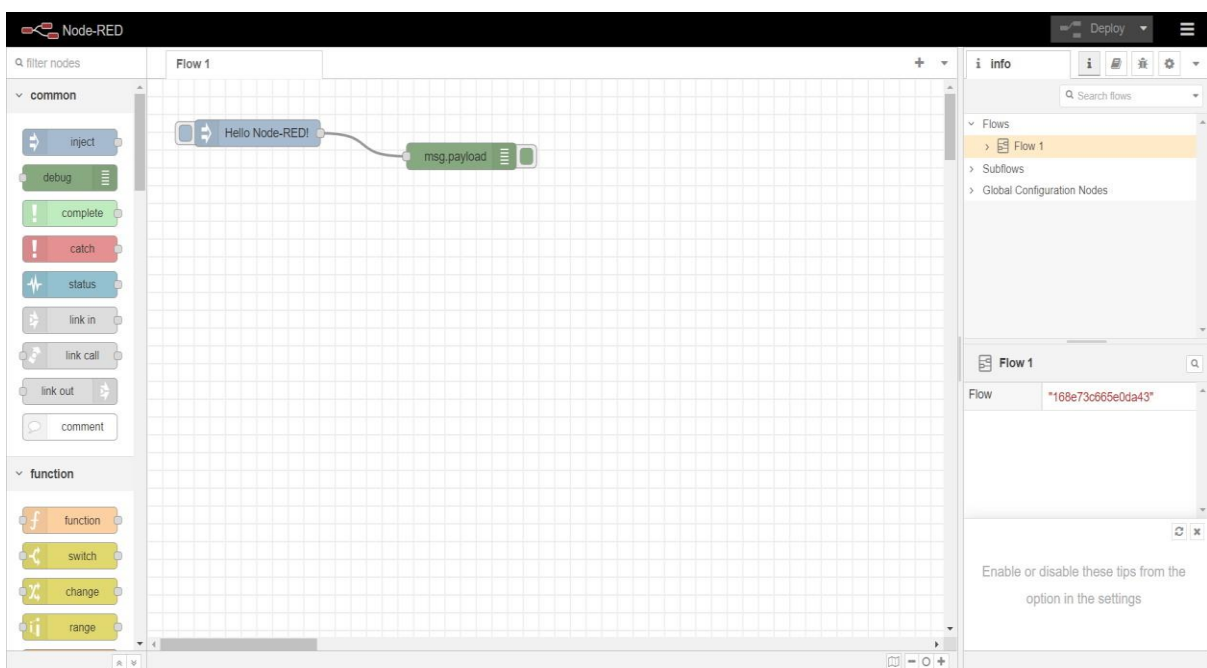
1. Use the **Services** card to connect a service to your app. Select an existing service instance, or create a new one. [Learn more](#)
2. If you want to view the code before your app is deployed, click **Download code** to obtain the .zip file.
3. Click **Deploy your app** in the **Deployment Automation** card to select the deployment target and configure the Continuous Delivery service. The deployment begins automatically.
4. After the deployment begins, you can view the status of the deployment, modify your app, view your repo, or view the app's URL.
5. If you make any changes to your app, be

ASK A QUESTION

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

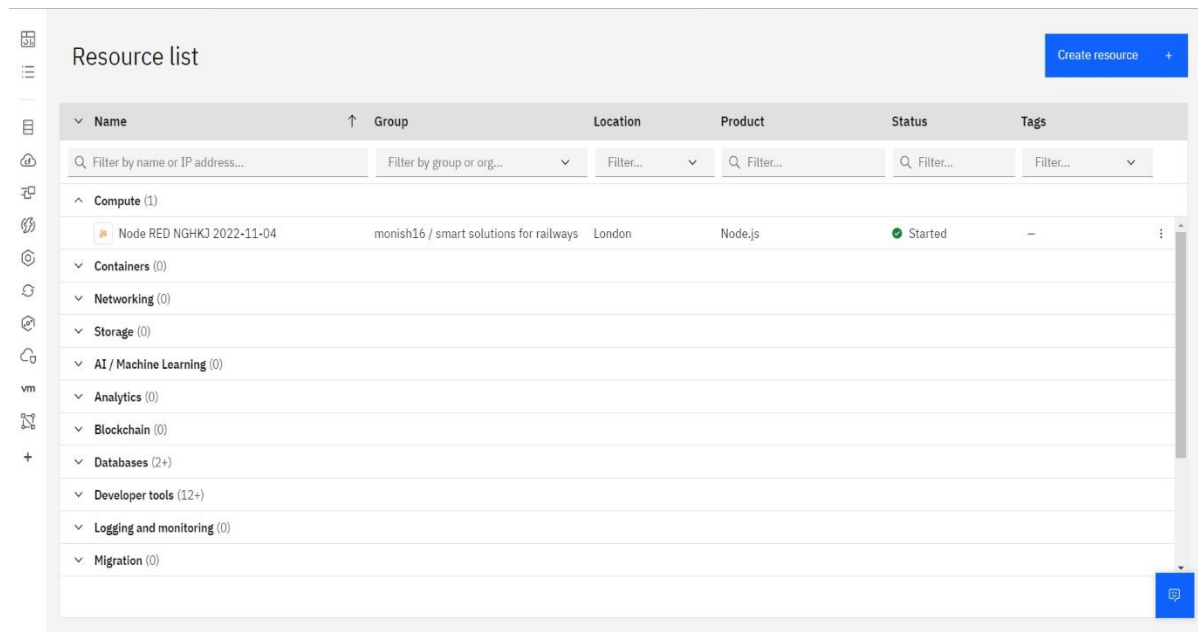


STEP 12: Click on node-red flow editor and you will be redirected to your node-red workspace:

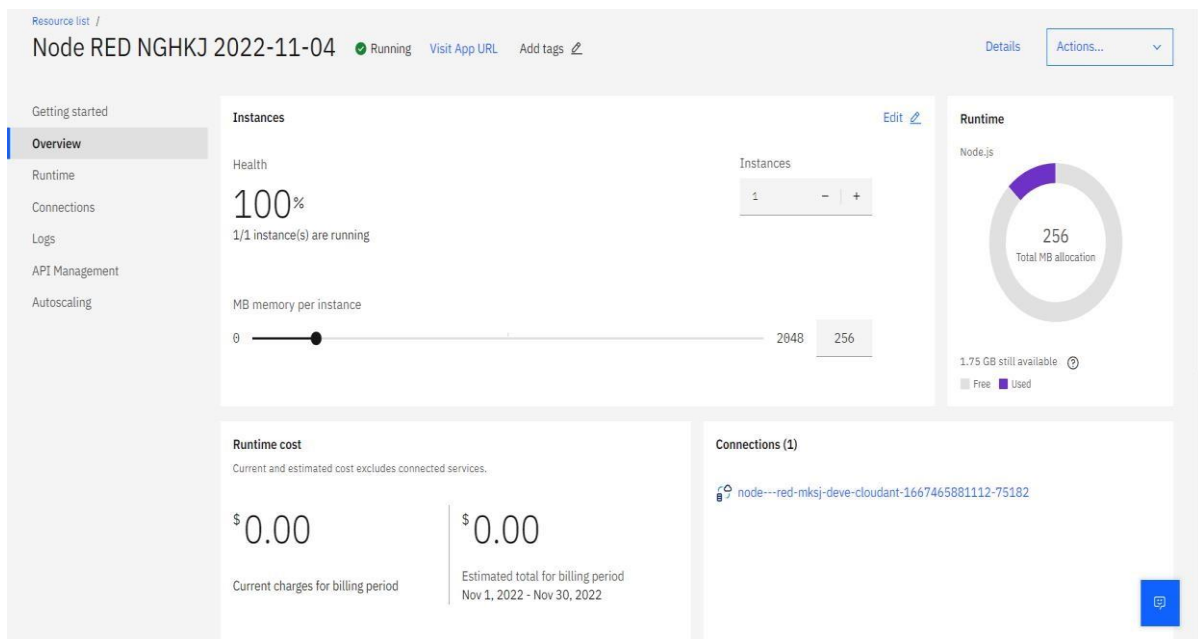


DIRECTING TO CREATED NODE-RED WORKSPACE

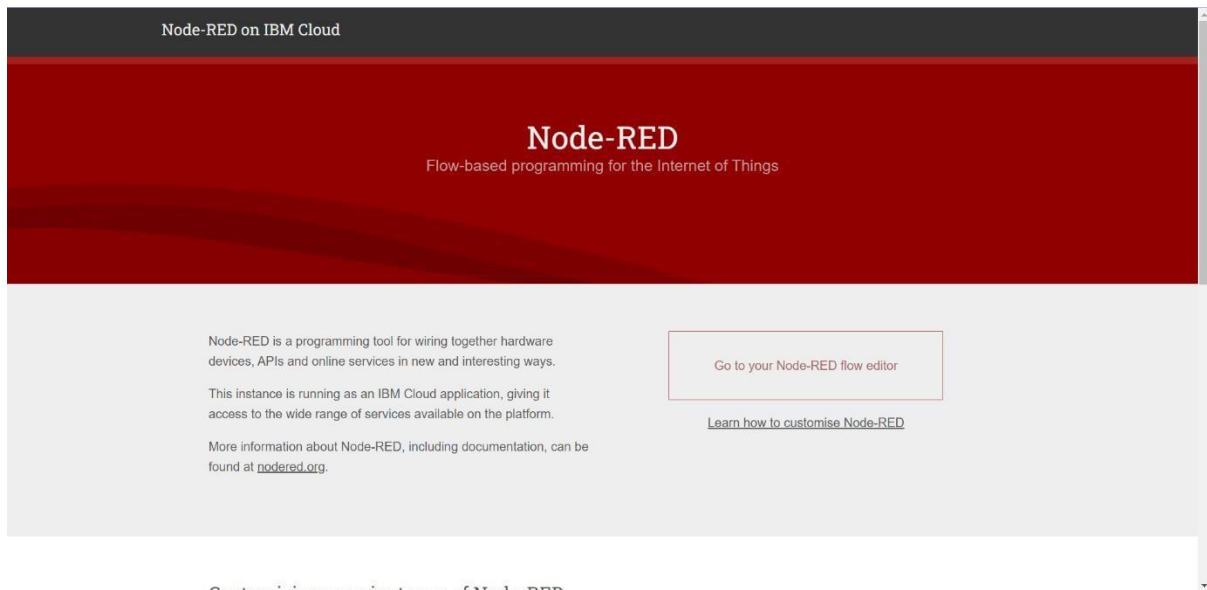
STEP 13: In resource select compute and click on node-red :



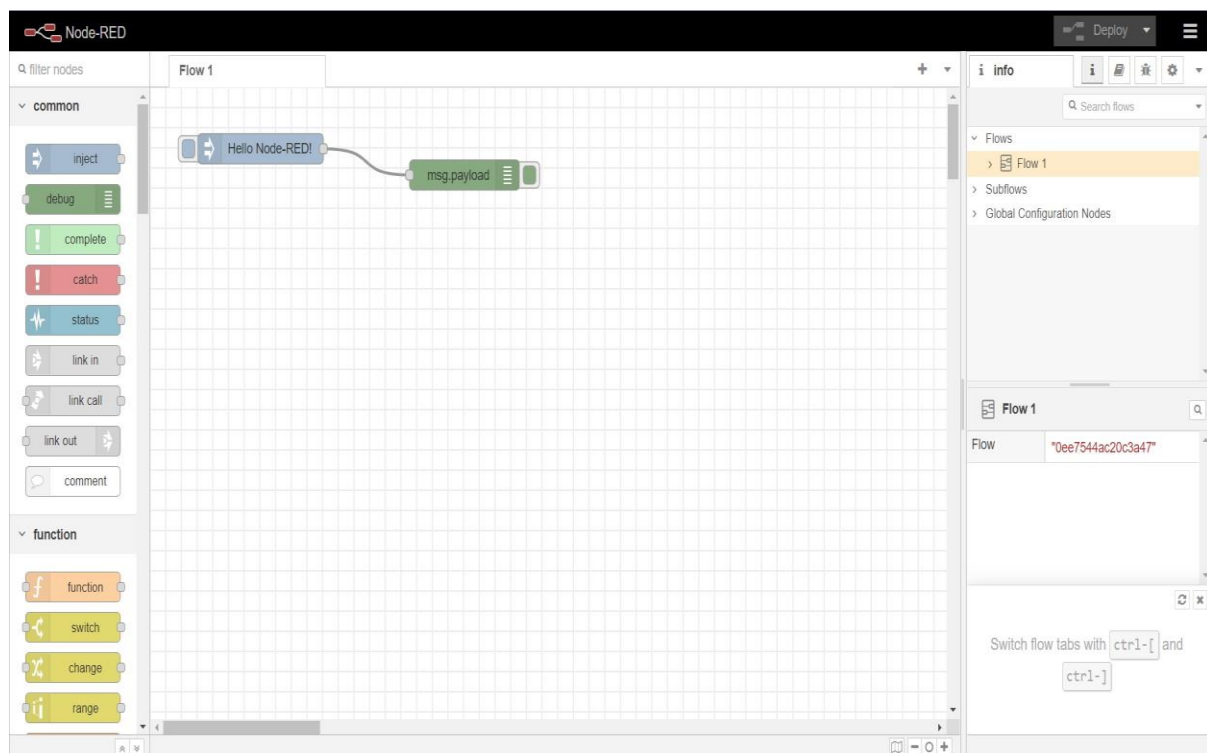
STEP 14: Click on visit app URL to be redirected to node red:



STEP15: 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:

The API key has been added.

Authentication tokens are non-recoverable. If you misplace this token, you will need to re-register the API key to generate a new authentication token.

Generated Details		API Key Information	
API Key	a-jqr6mg-hqigptkico	Description	-
Authentication Token	ann9MQLM_l_uXnoItY	Role	Standard Application
		Expires	Never

Make a note of the generated authentication token. Lost authentication tokens cannot be recovered. If you lose the token, you must reregister the API to generate a new token.

[View API Key](#) [Add Another](#) [Close](#)

Browse API Keys

This table shows a summary of the API keys that have been added for the organization. It can be filtered, organized, and search on using different criteria. To get started, you can add API keys by clicking Generate API Key.

Type the app description to search for

1 Simulation running

STEP 18: Edit IBM IOT in node:

Node-RED interface showing the configuration for the IBM IoT node.

The left sidebar shows the palette with nodes categorized under 'common' and 'function'. The main workspace displays a flow with an 'inject' node connected to an 'IBM IoT' node.

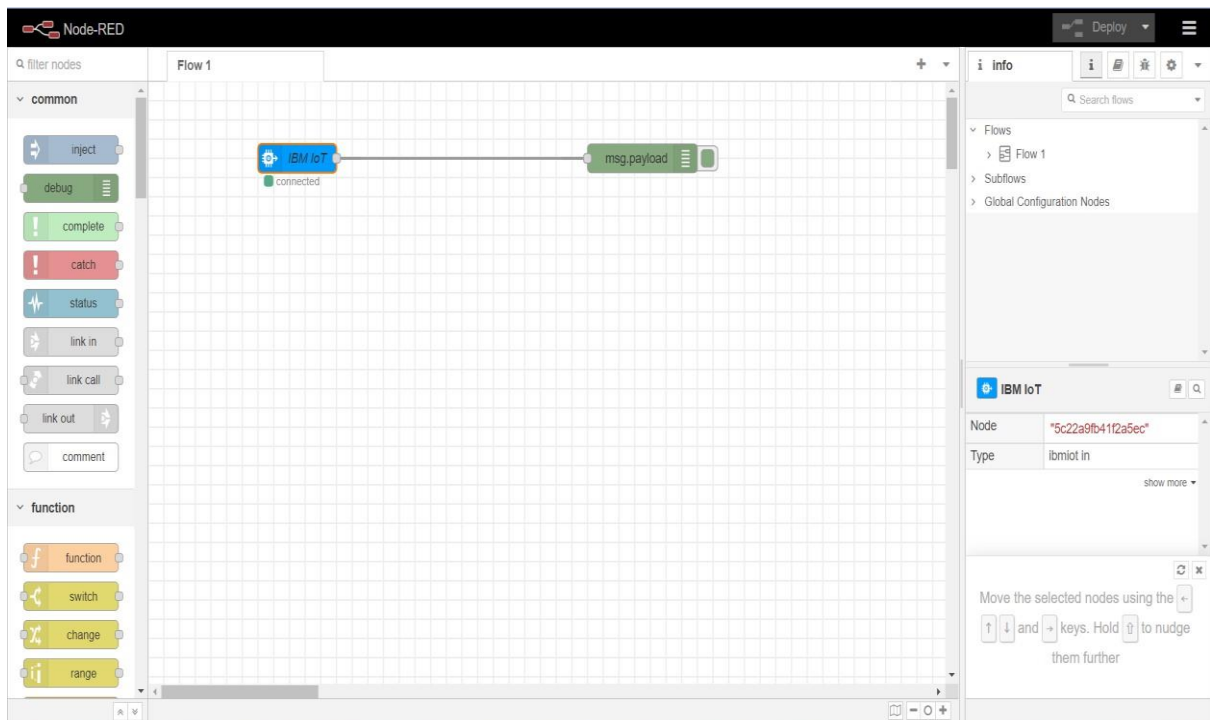
The right sidebar shows the configuration for the 'IBM IoT' node:

- Authentication:** API Key
- API Key:** e19c2b2383d75b20
- Input Type:** Device Event
- Device Type:** All or b11m3edevicetype
- Device Id:** All or MKSJ16
- Event:** All or +
- Format:** All or json
- QoS:** 0
- Name:** IBM IoT
- Service:** registered

Use the Input Type property to configure this node to receive Events sent by IoT Devices, Commands sent to IoT Devices, Status Messages referring to IoT Devices, or Status Messages referring to

☐ Enabled

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



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

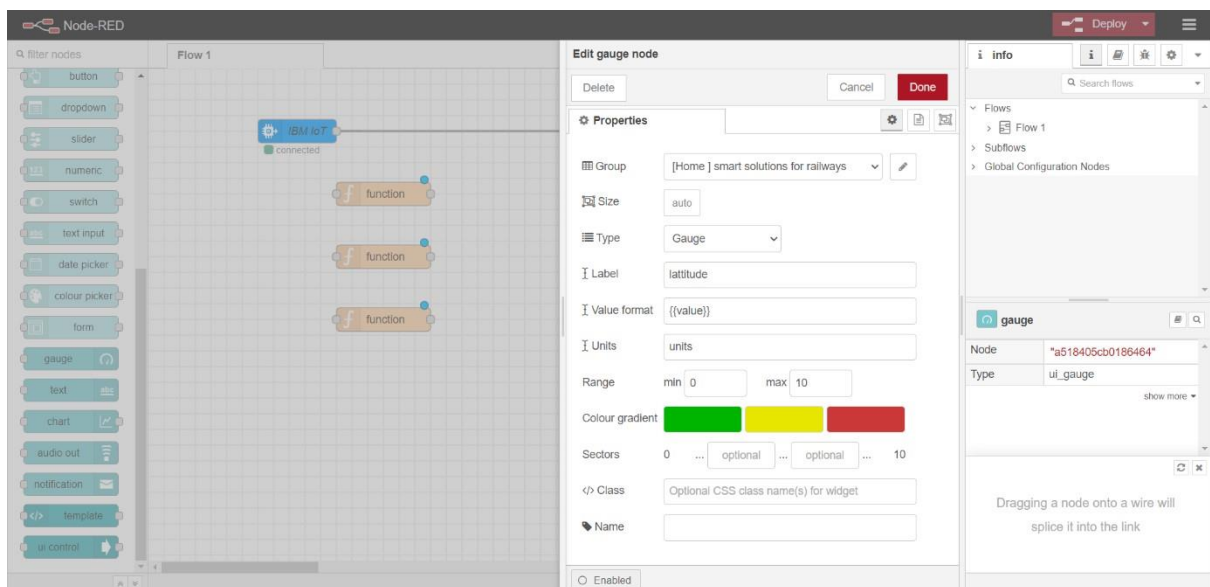


FIG 1

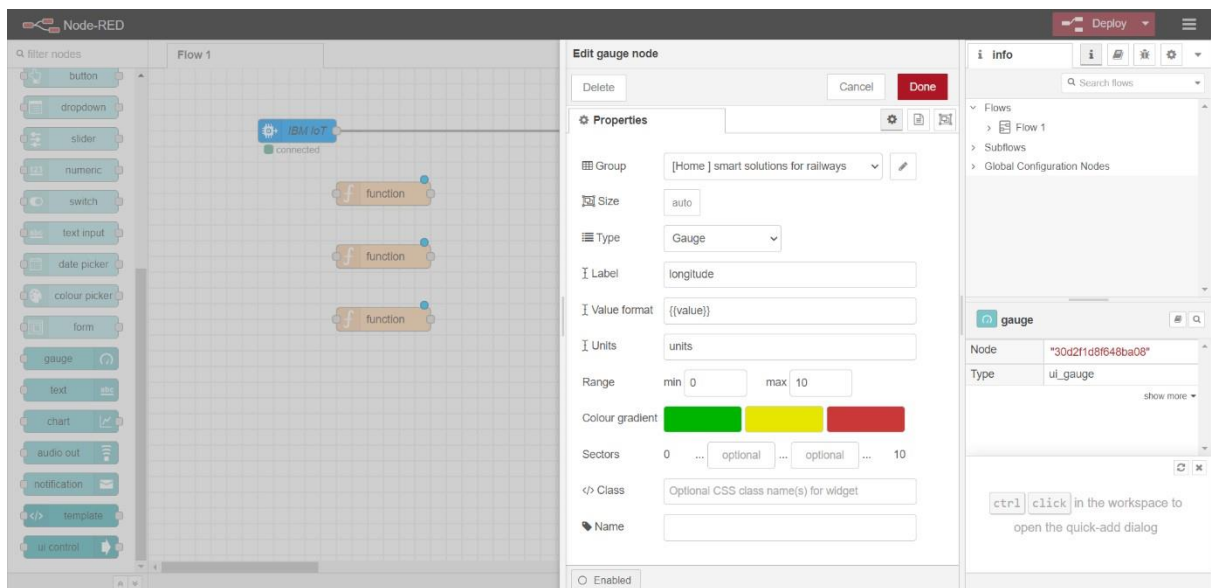


FIG 2

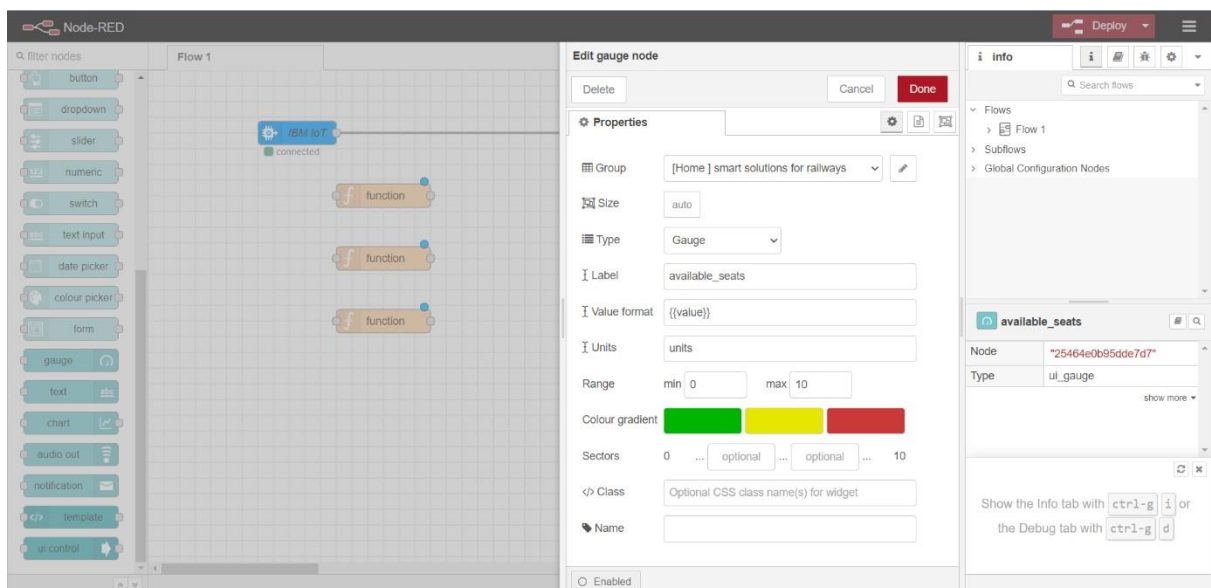
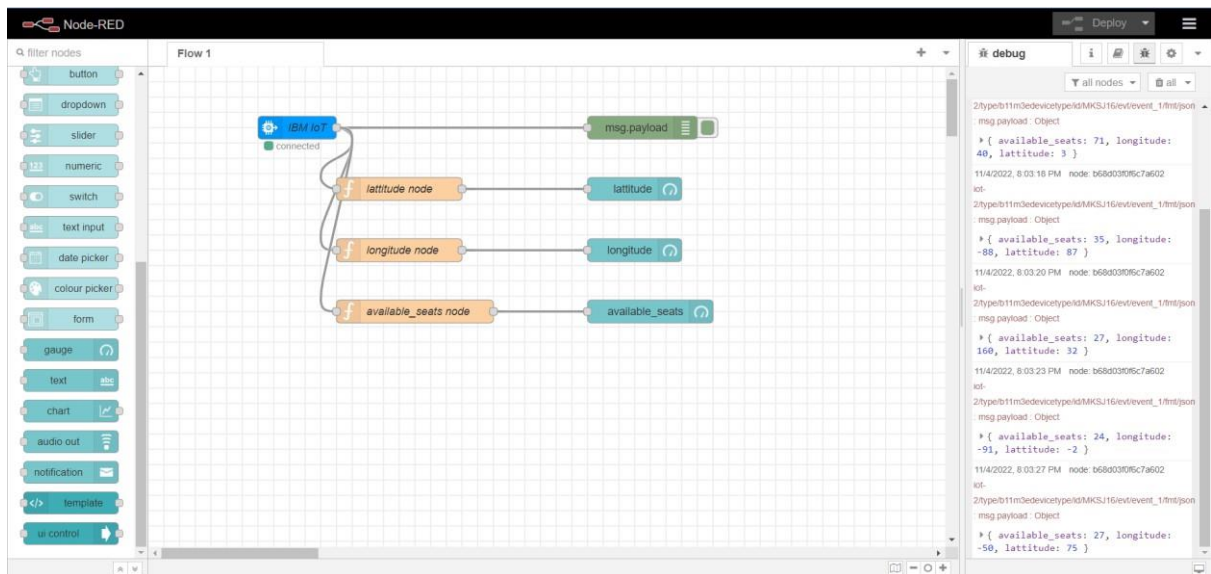


FIG 3

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



The screenshot shows the IBM Watson IoT Platform interface. The main panel displays the 'Recent Events' tab for a device. A modal window is open for editing an event.

Recent Events Table:

Event	Value	Format	Last Received
event_1	{"available_seats":61,"longitude":-10,"latitude":...	json	a few seconds
event_1	{"available_seats":57,"longitude":108,"latitude":...	json	a few seconds
event_1	{"available_seats":81,"longitude":117,"latitude":...	json	a few seconds
event_1	{"available_seats":39,"longitude":81,"latitude":...	json	a few seconds
event_1	{"available_seats":10,"longitude":-30,"latitude":...	json	a few seconds

Event Modal Window:

- Device Type:** b11m3edevicetype
- Event type name:** event_1
- Schedule:** 20, Every Minute
- Payload:**

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