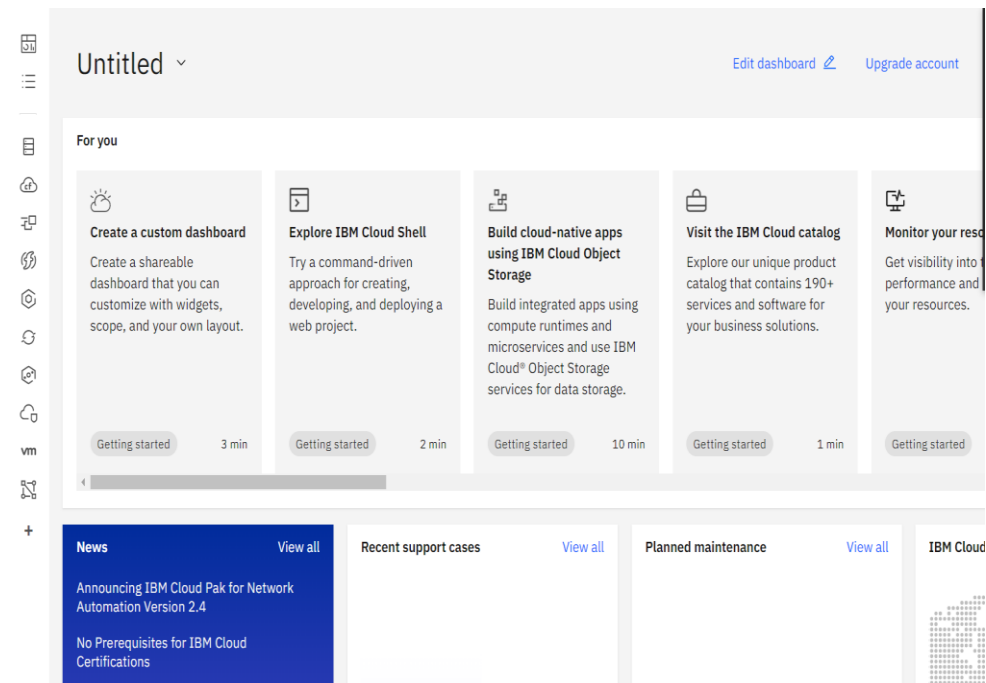


## SPRINT-2

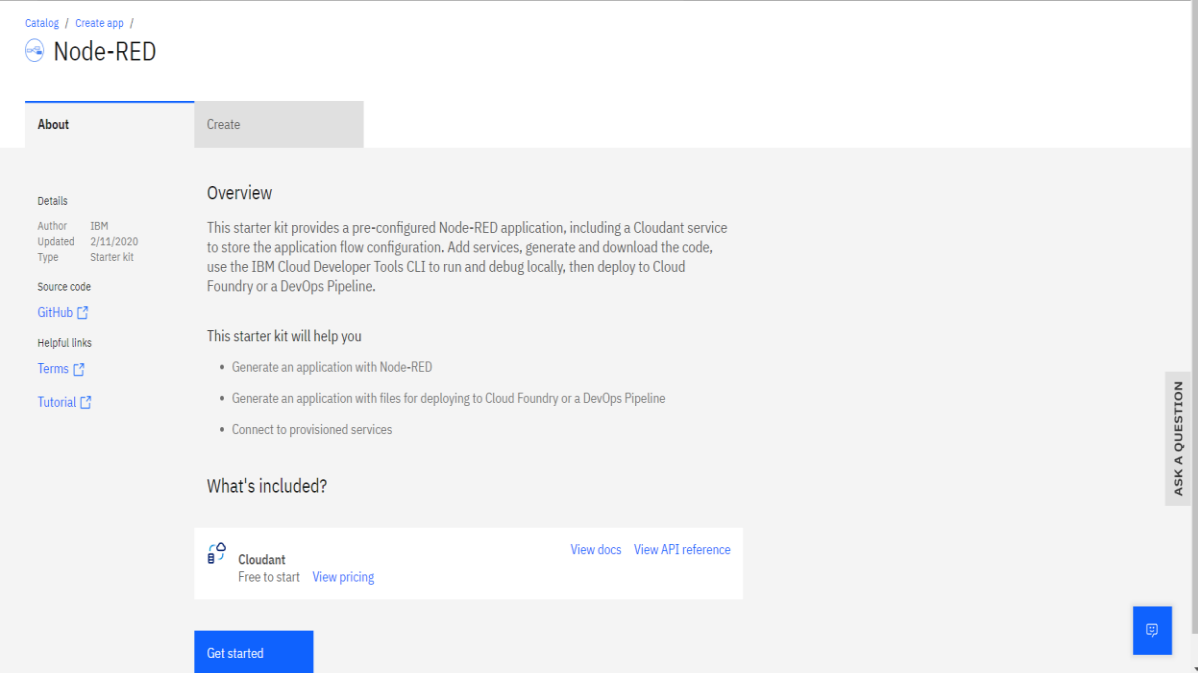
Date	05 November 2022
Team ID	PNT2022TMID05167
Project Name	SMART SOLUTIONS FOR RAILWAYS

## CREATING NODE-RED IN IBM CLOUD

**STEP 1:**Open ibm cloud:

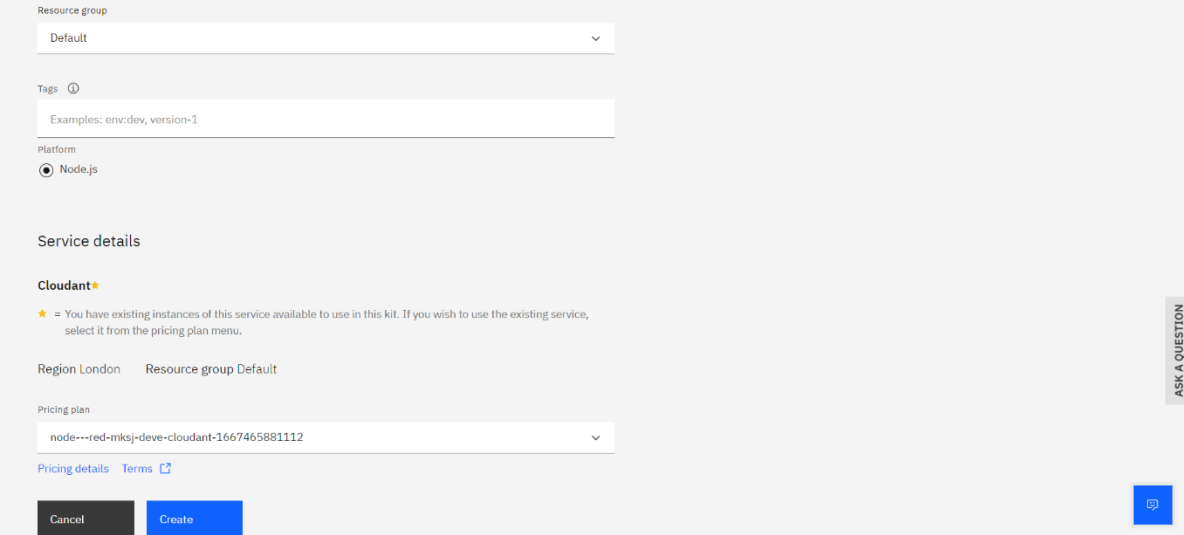


## STEP 2: Go to catalog and search for node red app and open it:



The screenshot shows the IBM Cloud catalog page for the Node-RED application. The breadcrumb navigation at the top reads "Catalog / Create app /". The main heading is "Node-RED". Below this, there are two tabs: "About" (selected) and "Create". The "About" tab contains a sidebar with "Details" (Author: IBM, Updated: 2/11/2020, Type: Starter kit, Source code: GitHub), "Helpful links" (Terms, Tutorial), and an "Overview" section. The "Overview" section describes the starter kit, which includes a pre-configured Node-RED application, a Cloudant service for storing configuration, and instructions for using the IBM Cloud Developer Tools CLI. It also lists three steps: "Generate an application with Node-RED", "Generate an application with files for deploying to Cloud Foundry or a DevOps Pipeline", and "Connect to provisioned services". A "What's included?" section highlights the "Cloudant" service, noting it is "Free to start" and providing links to "View docs" and "View API reference". A "Get started" button is located at the bottom left of the main content area. On the right side, there is a vertical "ASK A QUESTION" button.

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



The screenshot shows the "Create app" form for the Node-RED application. The "Resource group" is set to "Default". The "Tags" field is empty, with examples provided: "env:dev, version-1". The "Platform" is set to "Node.js". The "Service details" section shows the "Cloudant" service. A note indicates that existing instances can be used. The "Region" is set to "London" and the "Resource group" is "Default". The "Pricing plan" is set to "node---red-mksj-devel-cloudant-1667465881112". There are links for "Pricing details" and "Terms". At the bottom, there are "Cancel" and "Create" buttons. On the right side, there is a vertical "ASK A QUESTION" button.

## STEP 4: click on deploy your app button:

Resource list / App details / Node RED NGHKJ 2022-11-04 Add tags

**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**

[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 NGHKJ 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 [Now](#)

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

SpacesUsersDomainsInfo

Add a space

Name	Region	ID	Manager	Date Created	Actions
<a href="#">smart solutions for railways</a>	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

Organization

Space

London

monish16

smart solutions for railways

Host

Domain

node-red-ngkhj-2022-11-04

eu-gb.mybluemix.net

Cancel

Next

ASK A QUESTION

**STEP 8:**select the region and click create:

Resource list / App details /

Node RED NGHKJ 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 [Link](#)

Status: No stages detected [Link](#)

Name: pr-pipeline [Link](#)

Status: No stages detected [Link](#)

### 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 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 [Link](#)

Status: Success [Link](#)

Name: pr-pipeline [Link](#)

Status: No stages detected [Link](#)

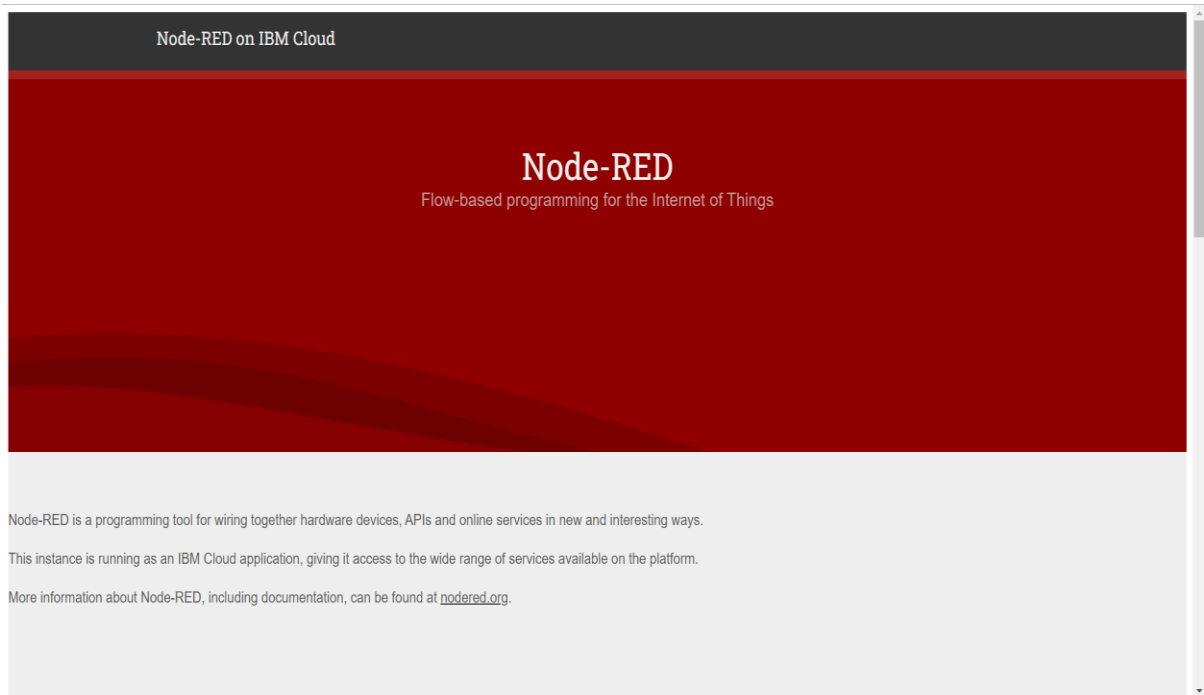
### Getting started quickly

**Configuring your app**

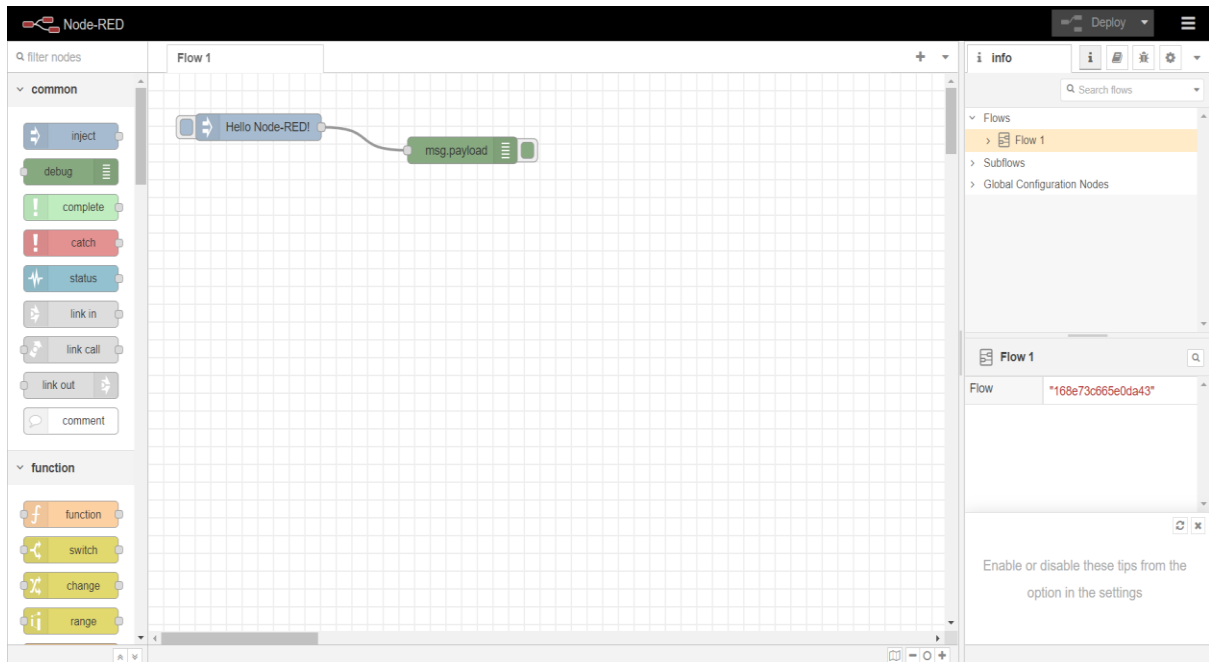
To connect services and DevOps toolchains to your app:

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

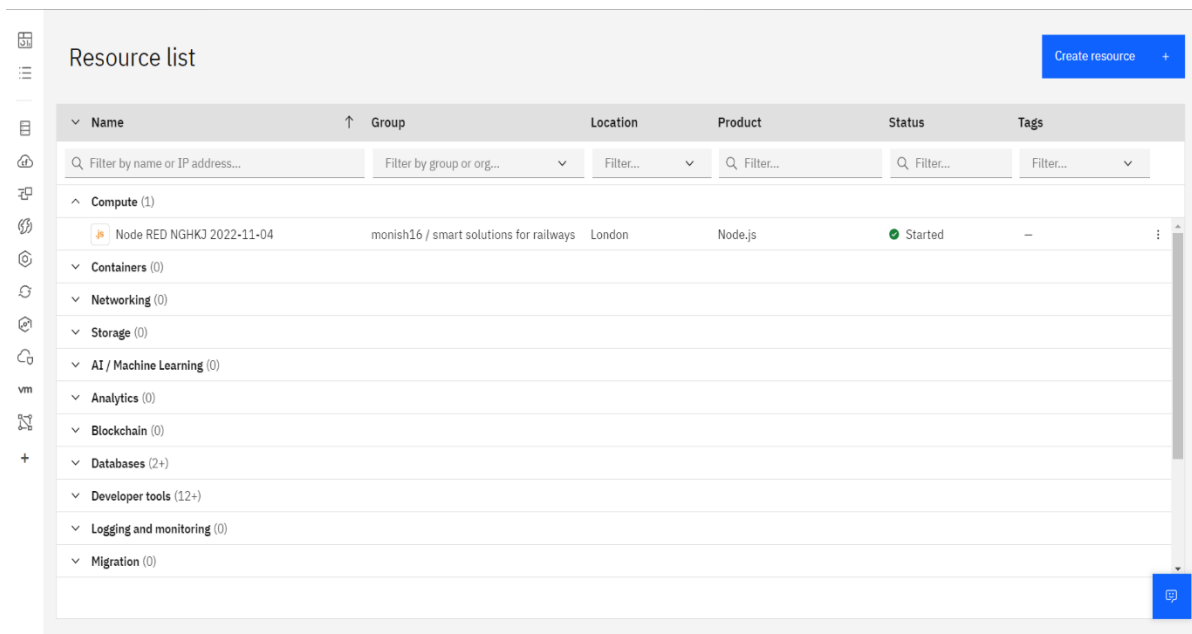


**STEP 12:** Click on node-red flow editor and you will be redirected to your node-red workspace:

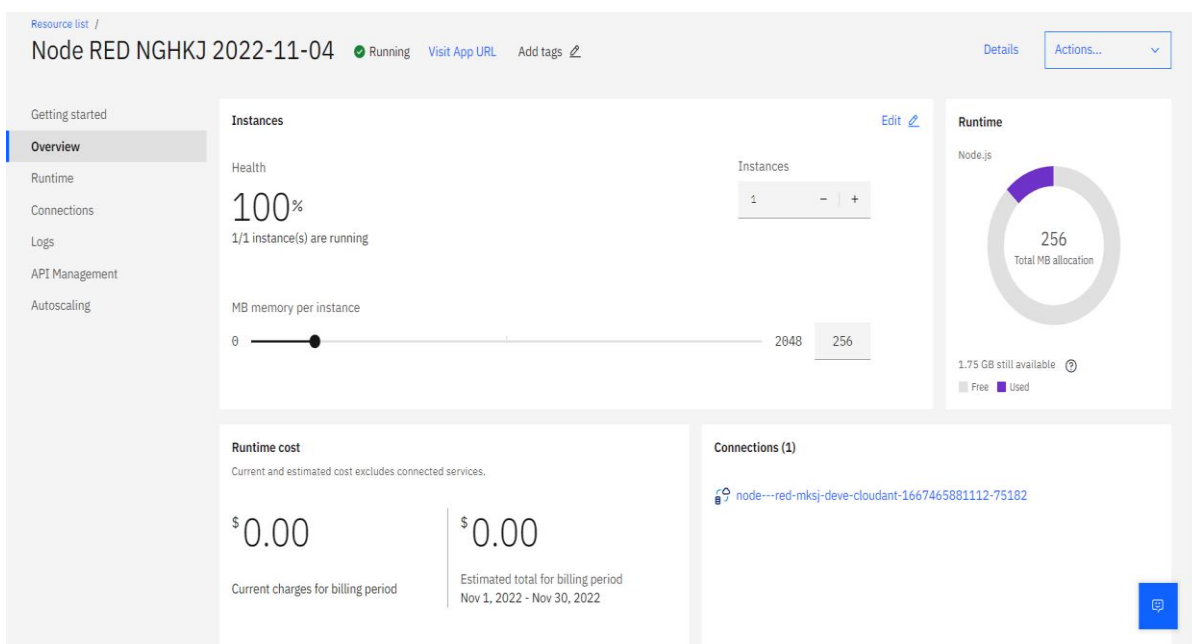


**DIRECTING TO CREATED NODE-RED WORKSPACE**

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

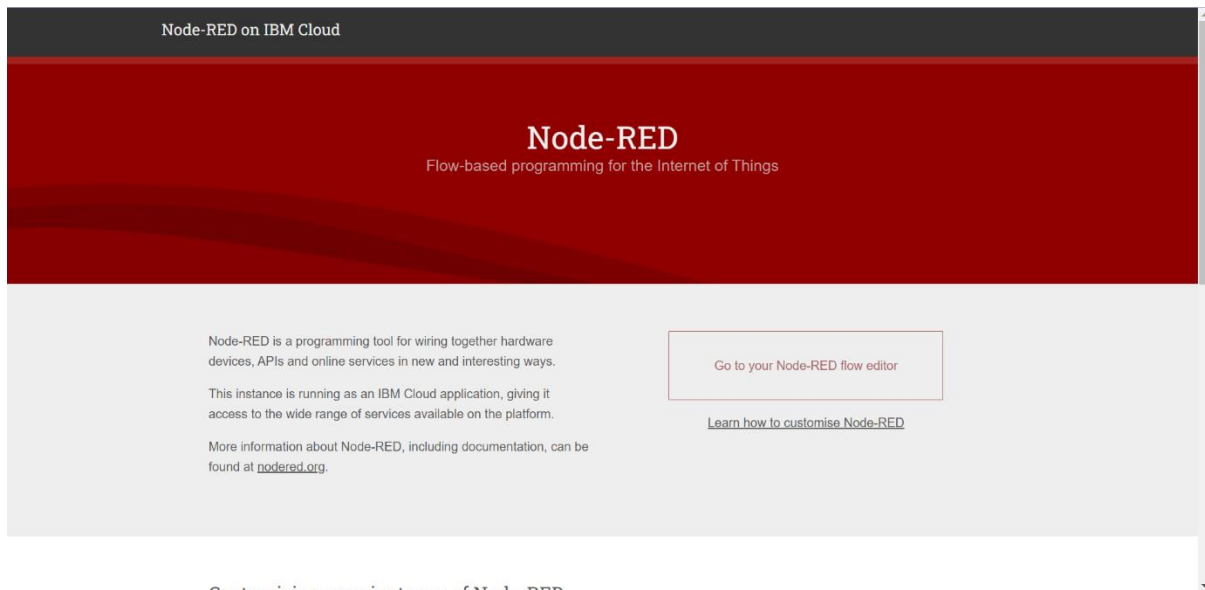


**STEP 14:** click on visit app url to be redirected to node red:

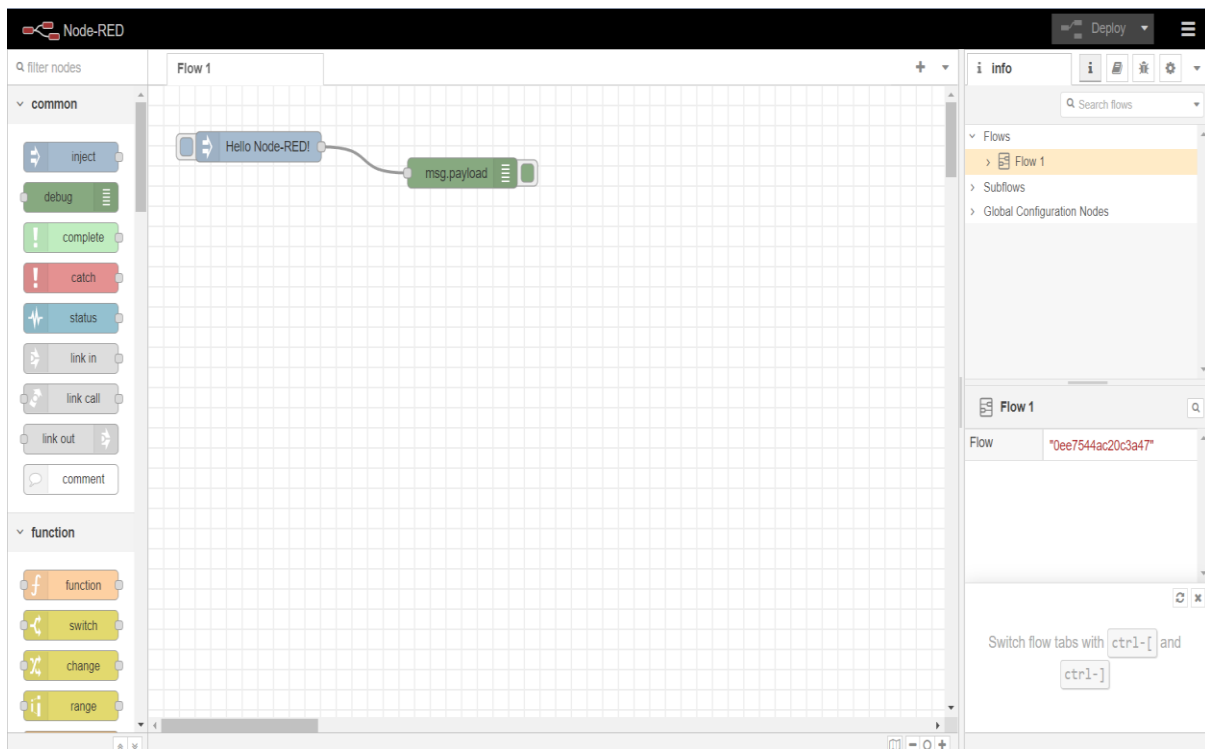


**STEP15:** Click on go to your NODE-RED flow editor button:





**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-hqiqptkico	Description	-
Authentication Token	ann9MQLM_j_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 IbmIoT in node:

Node-RED

Flow 1

common

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

function

- function
- switch
- change
- range

IBM IoT

connected

Edit IbmIoT in node

Delete Cancel Done

Properties

- 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

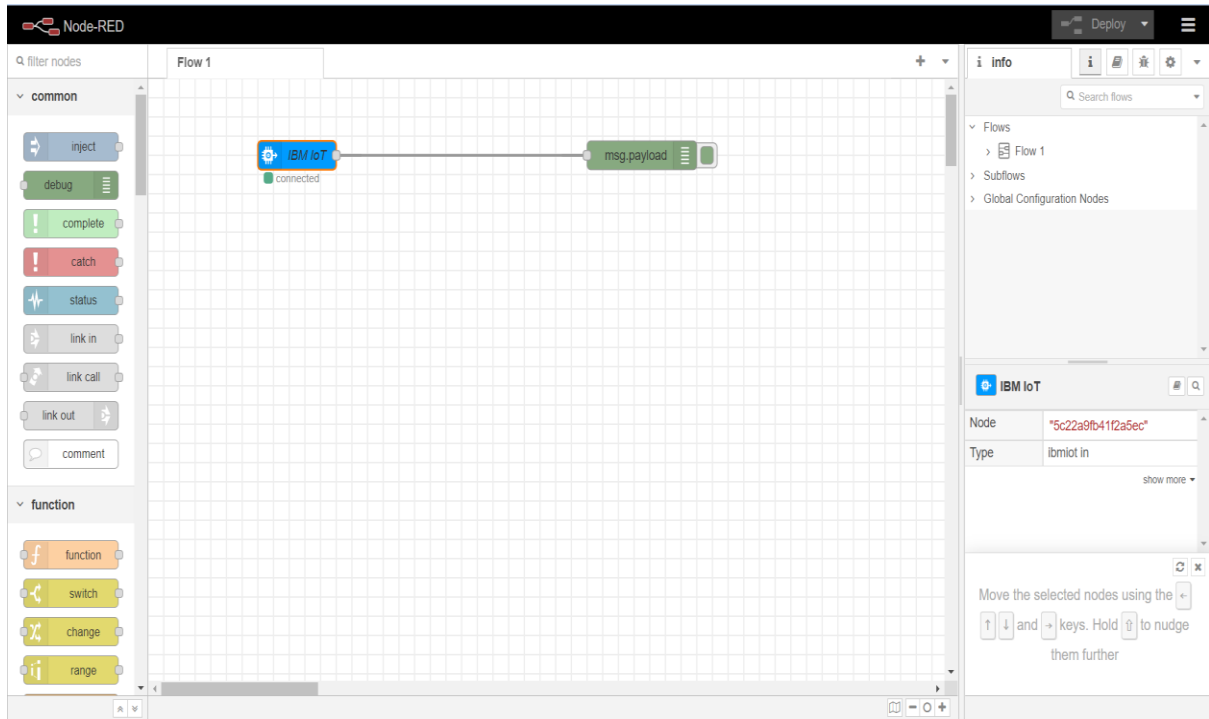
Use the Input Type property to configure this node to receive Events sent by IoT Devices, Commands sent to IoT Devices, Status Messages referring to IoT Devices, or Status Messages referring to

☐ Enabled

debug

all nodes all

## STEP 19: Connect IbmIoT 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):

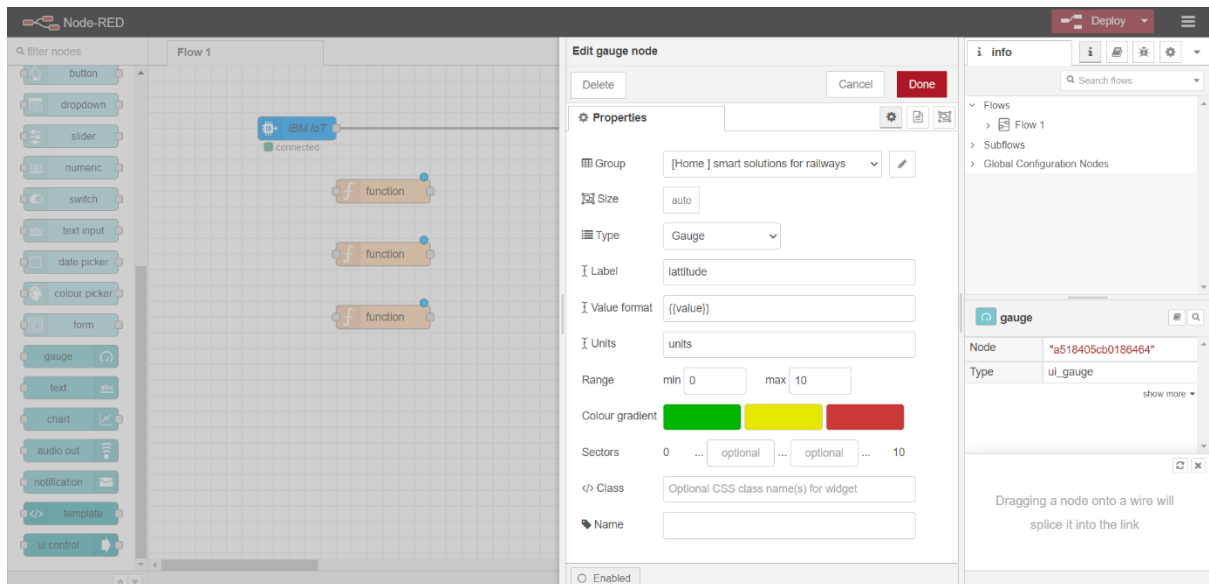


FIG 1

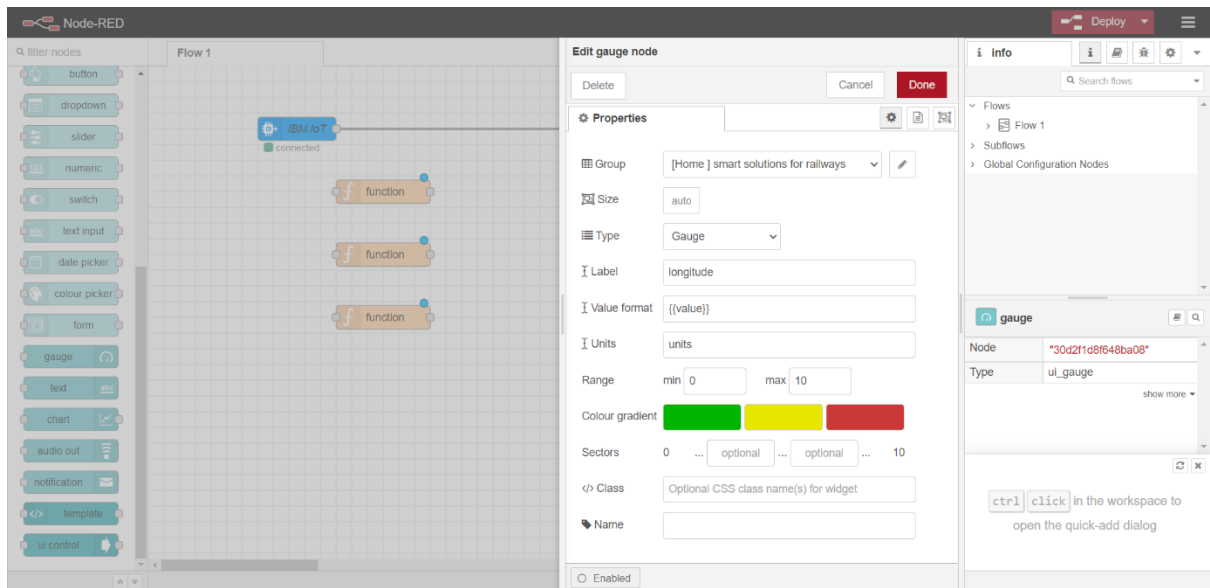


FIG 2

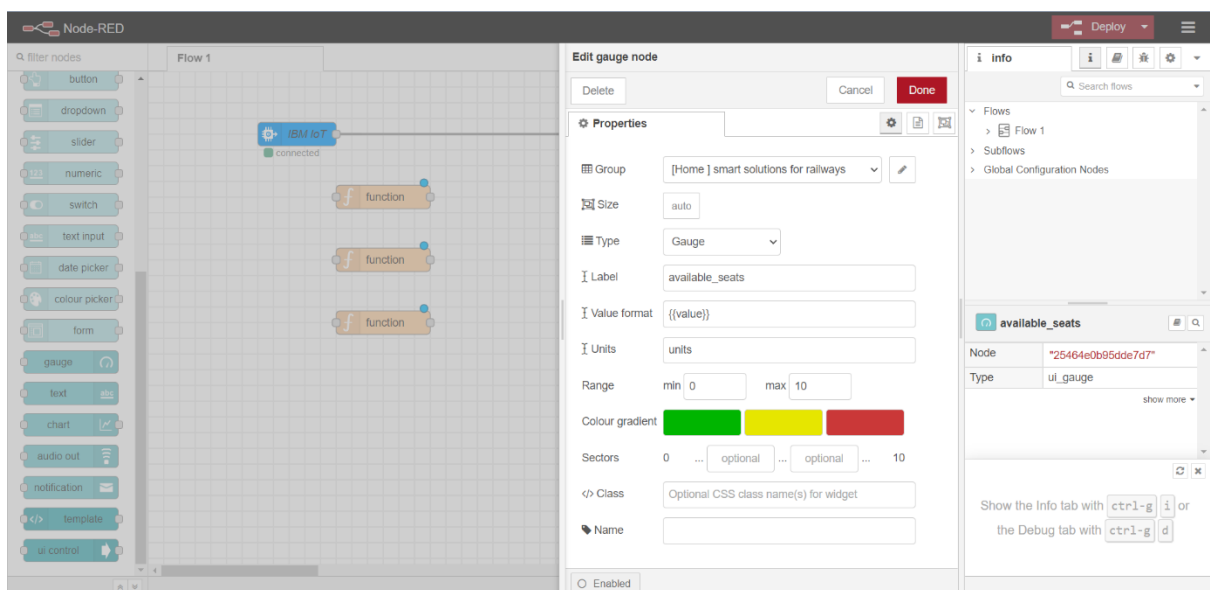
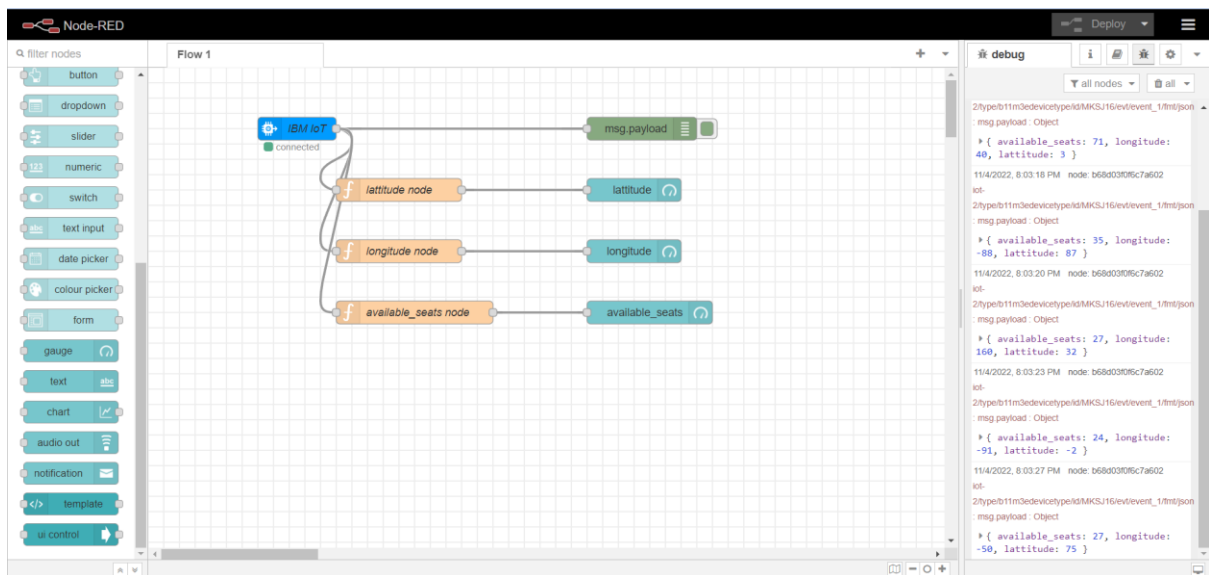


FIG 3

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



The IBM Watson IoT Platform interface shows the 'Recent Events' tab for a device. The table below lists the recent events:

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

The modal window for creating a new event type is open. The event type name is 'event\_1'. The schedule is set to 'Every Minute'. The payload is defined as follows:

```

0 {
1   "available_seats": random(0, 100)
2   "longitude": random(-180, 180)
3   "latitude": random(-90, 90)
4 }
5

```

The modal window also includes an 'Upload a CSV file' button and 'Cancel' and 'Save' buttons.