

## SPRINT 2

TEAM ID	PNT2022TMID24852
PROJECT NAME	IOT BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE
DATE	18 November 2022

SPRINT 2 includes,

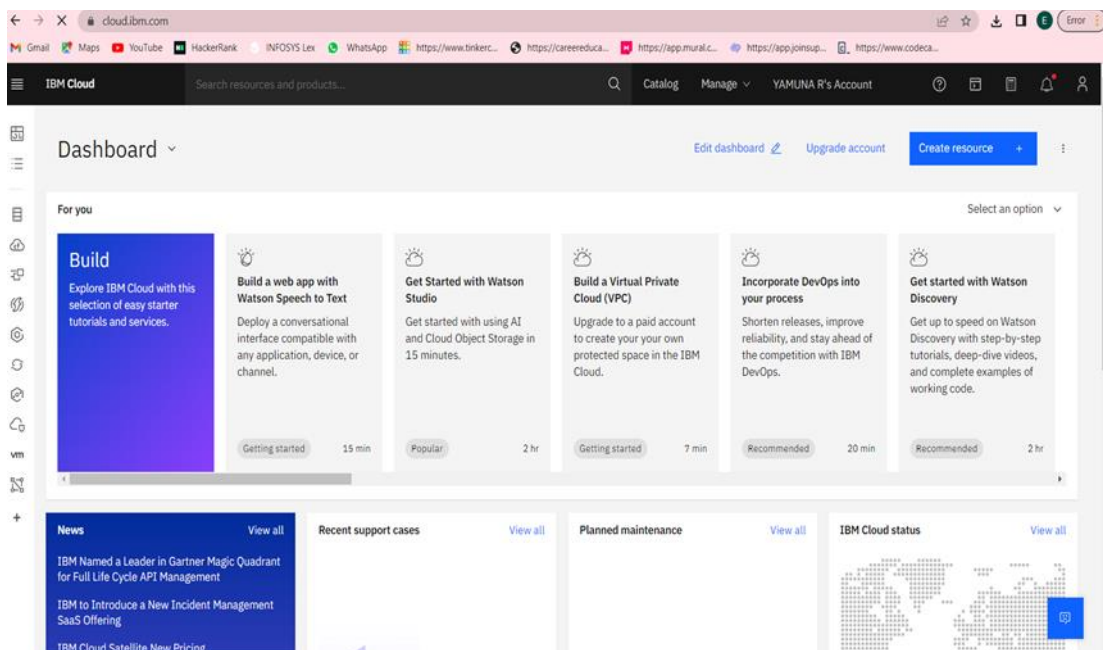
- 1) Creation of Cloud Object Storage Service
- 2) Creation of database in CLOUDANT DB
- 3) Creation of IBM WATSON
- 4) Creation of NODE RED

### CREATION OF CLOUD OBJECT STORAGE SERVICE

IBM Cloud provides solutions that enable higher levels of compliance, security, and management, with proven architecture patterns and methods for rapid delivery for running mission-critical workloads. Create a cloud object storage service, create a bucket to store the images, and configure the bucket settings

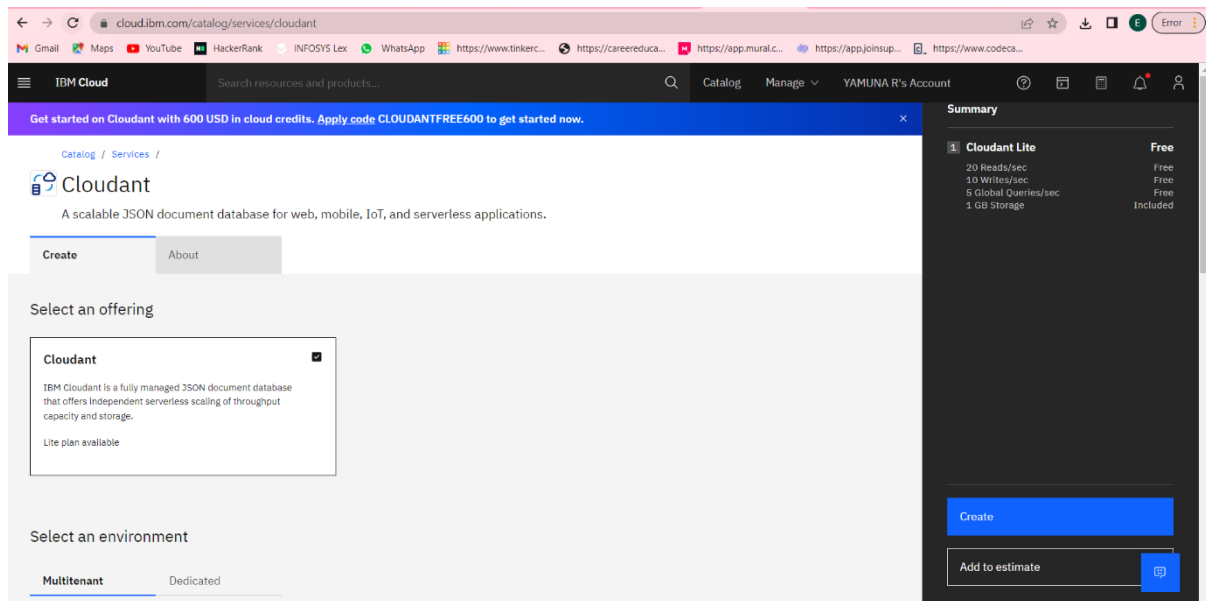
#### STEP 1:

- IBM cloud account creation.



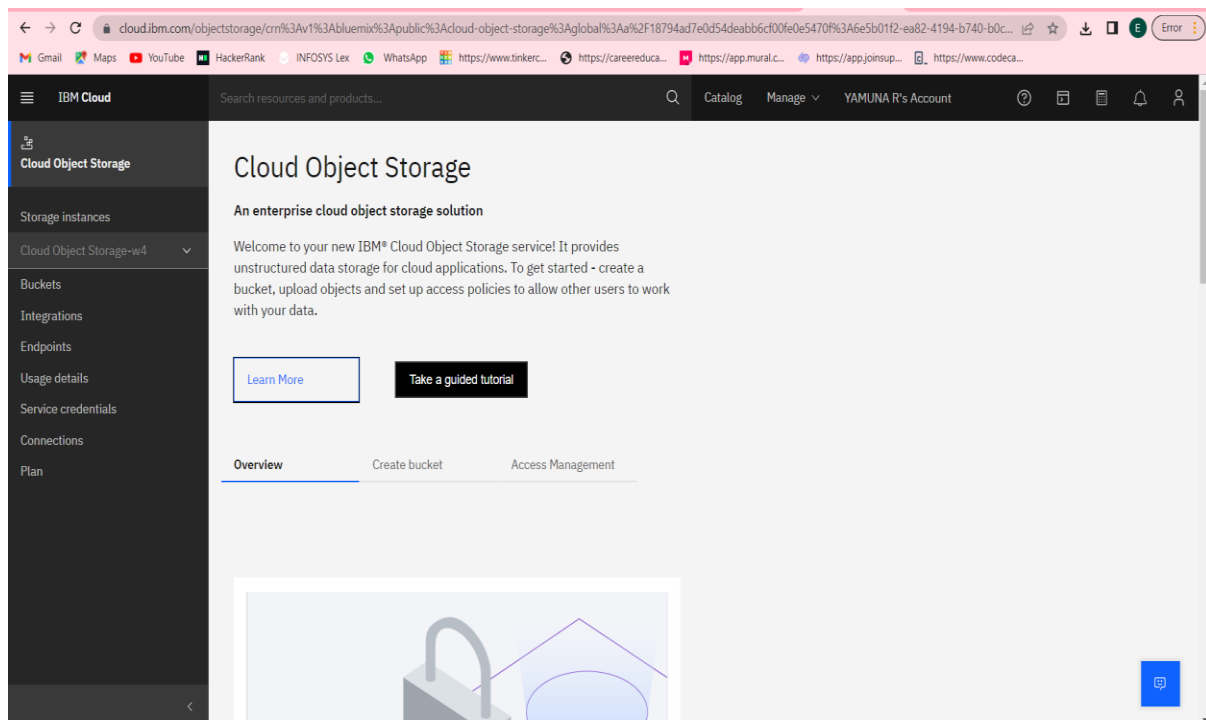
## STEP 2:

- Choose object storage from the storage under services and give the service name and click create option.



## STEP 3:

- Creating a bucket to store the files and data.



## STEP 4:

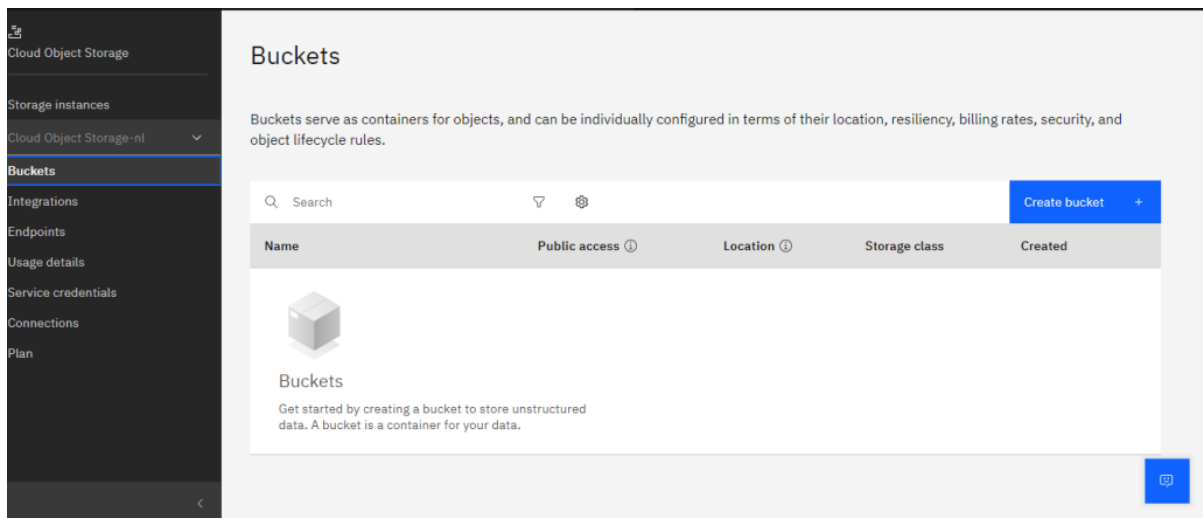
- Creating a bucket to store the files and data.

The screenshot shows the 'Custom bucket' configuration page in the IBM Cloud console. The browser address bar shows a long URL. The page header includes the IBM Cloud logo, a search bar, and navigation links for Catalog, Manage, and the user's account (YAMUNA R's Account). The main content area is titled 'Custom bucket' and includes a 'Unique bucket name' field with the value '1805rp'. A blue information box titled 'Bucket naming rules:' lists the following rules:

- Must be unique across the whole IBM Cloud Object Storage system
- Do not use any personal information (any part of a name, address, financial or security accounts or SSN)
- Must start and end in alphanumeric characters (3 to 63)
- Characters allowed: lowercase, numbers and nonconsecutive dots and hyphens

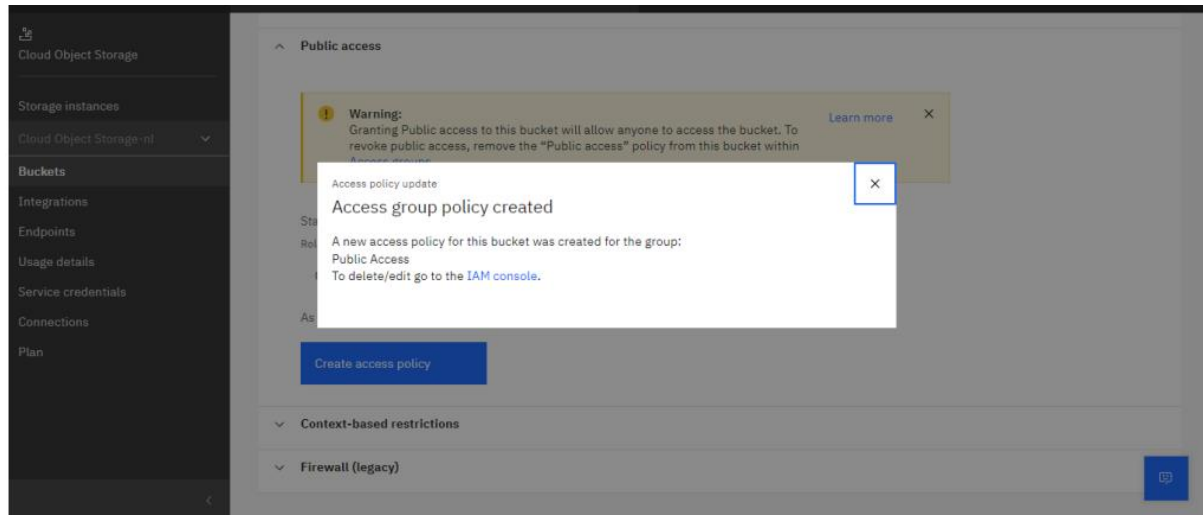
Below the rules, the 'Resiliency' section offers three options: 'Cross Region' (Highest availability), 'Regional' (Best performance, selected with a checkmark), and 'Single Site' (Data sovereignty). The 'Location' dropdown is set to 'jp-tok'. At the bottom, there is a 'Storage class' dropdown and a 'View pricing' link. A blue 'Create' button is visible in the bottom right corner.

- After creating a bucket, we can upload the files needed.

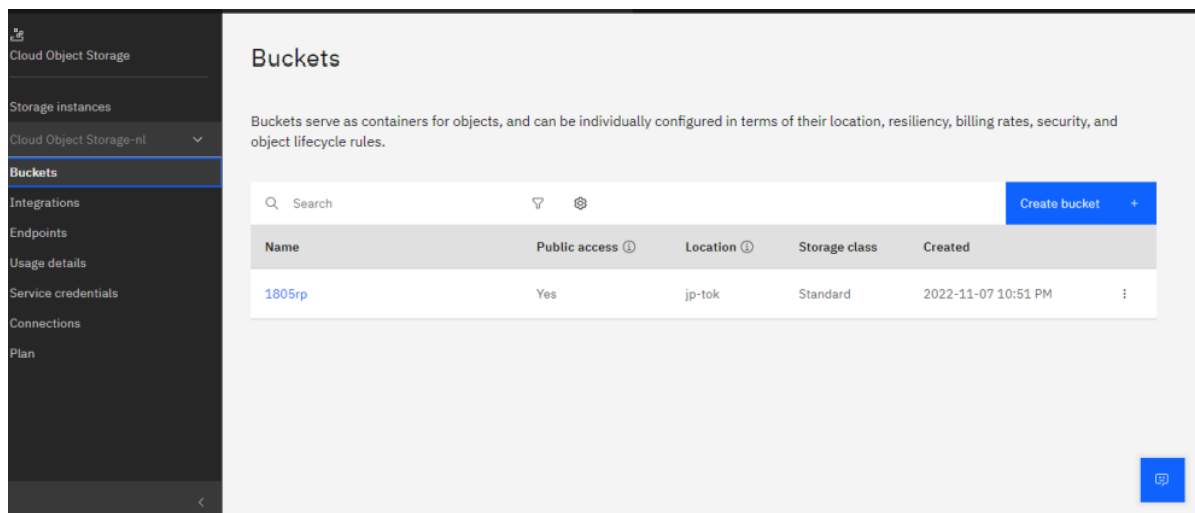


## STEP 5:

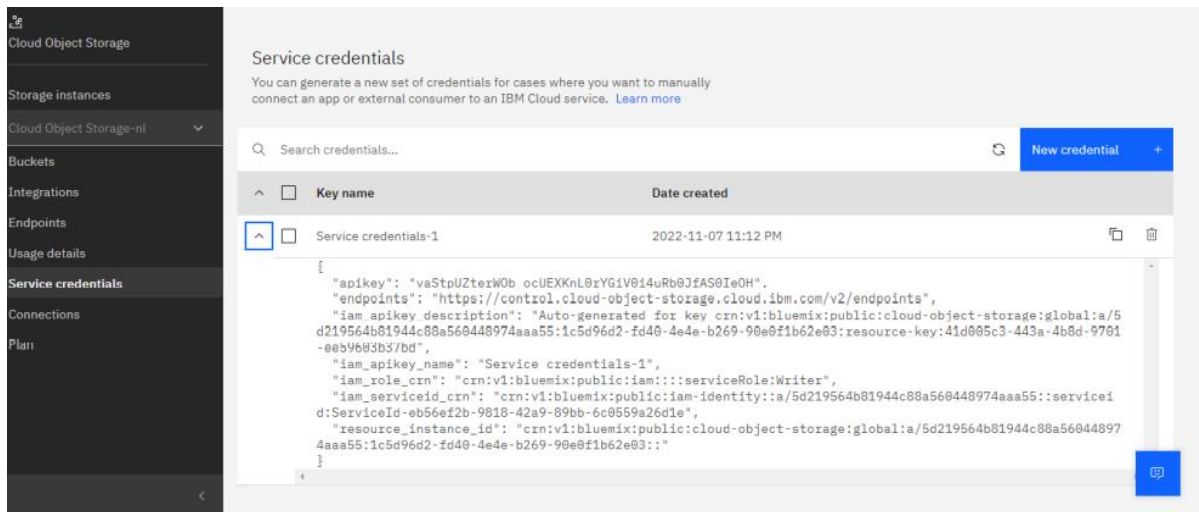
- Creating the access policies.



- Public access is given to the bucket.



- Accessing the service credentials

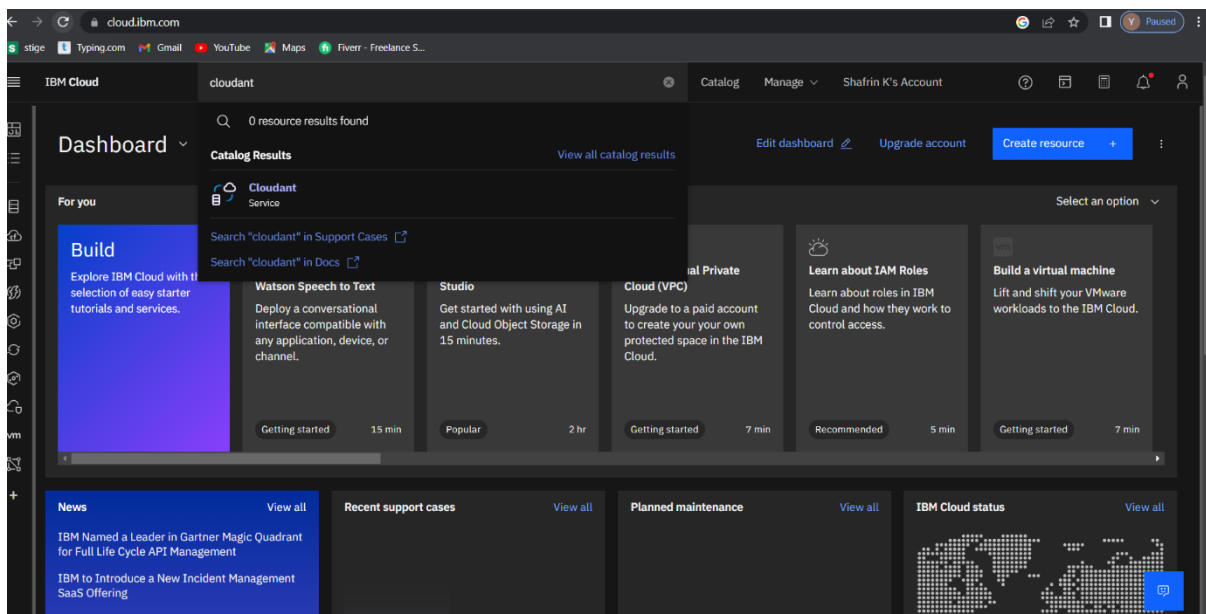


## CREATION OF DATABASE IN CLOUDANT DB

IBM Cloud it has integration capacity for legacy products software engineer. Ease to spin up service and operate, it has good migration services and cloud PAK system. It has many open-source tools for migration, best security as well. Creating a database to store the image URL.

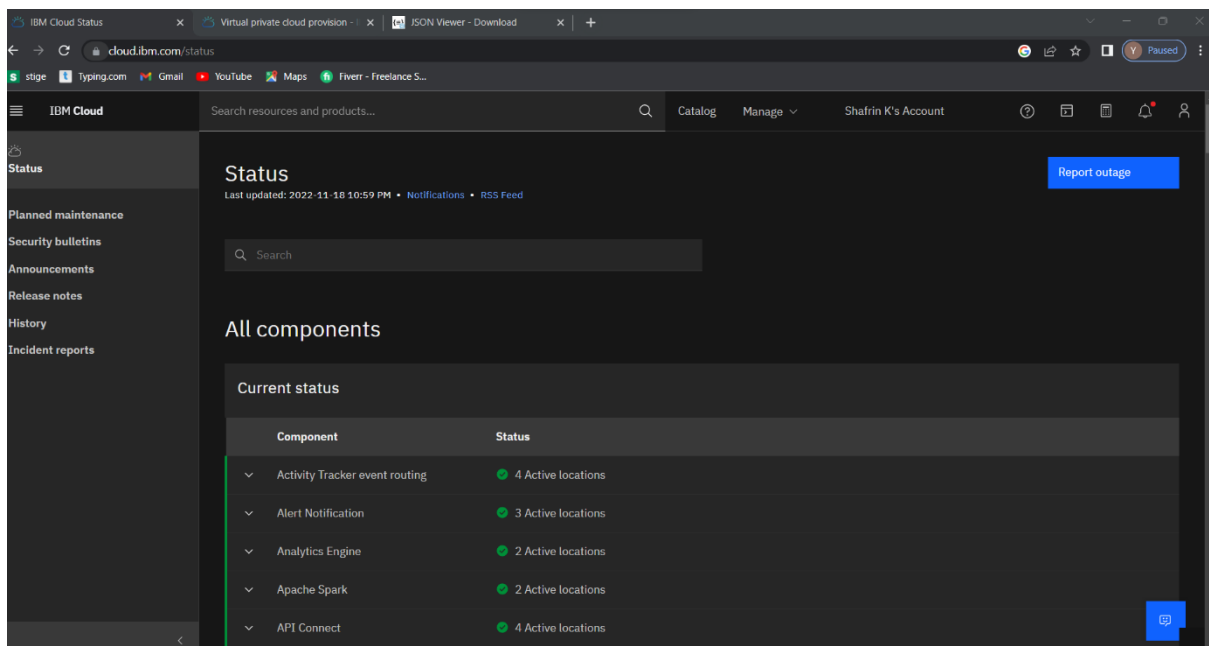
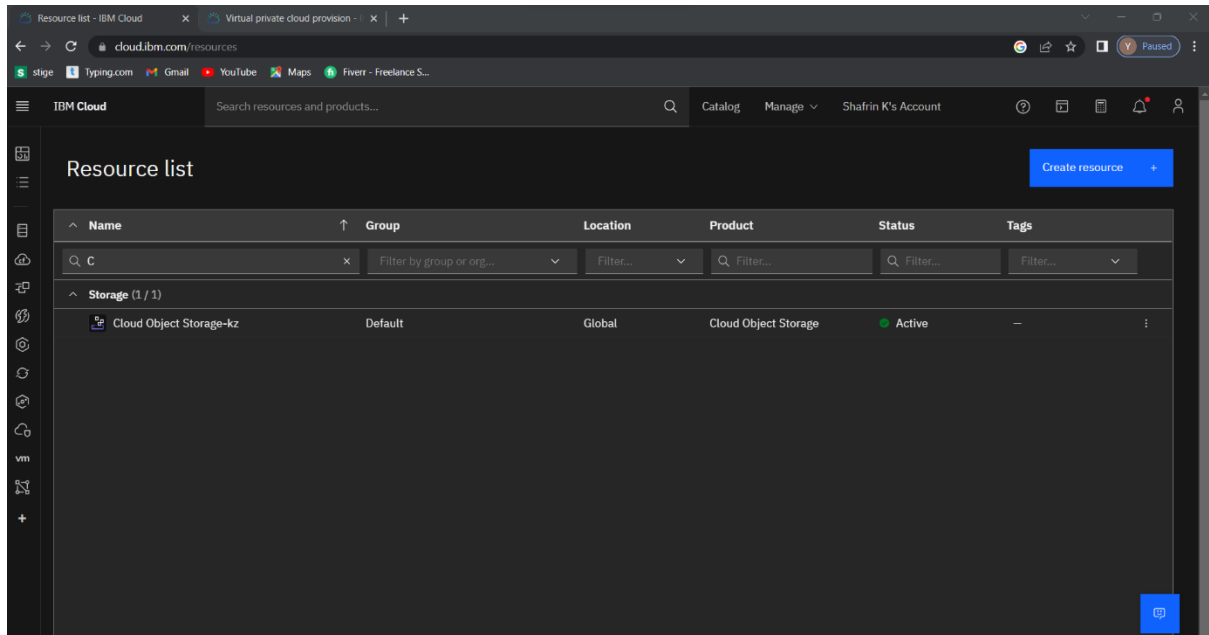
### STEP 1:

- Creation of Cloudant-f4.



## STEP 2:

- Then in the resource list the cloudant-f4 is active



### STEP 3:

- Then in the cloudant-f4 launch the Dashboard

The screenshot shows the 'Cloudant-f4' resource page in the IBM Cloud console. The page is titled 'Resource list / Cloudant-f4' and includes a status indicator 'Active' and an 'Add tags' link. The left sidebar contains a 'Manage' section with links for 'Service credentials', 'Plan', and 'Connections'. The main content area has tabs for 'Overview', 'Capacity', and 'Docs', with 'Overview' selected. A 'Launch Dashboard' button is visible in the top right. The 'Deployment details' section displays the following information:

- CRN:** crn:v1:bluemix:public:cloudantnosqldb:eu-gb:a/c108e8631a304b8cb2cd7b2f1f633180:44a608dc-e370-40a6-a1cd-1f617098fc30::
- Location:** London
- External endpoint:** <https://51c6de4c-f691-4ece-8d35-b329a9cde239-bluemix.cloudant.com>
- External endpoint (preferred):** <https://51c6de4c-f691-4ece-8d35-b329a9cde239-bluemix.cloudantnosqldb.appdomain.cloud>
- Authentication methods:** [IBM Cloud IAM](#) and [Cloudant credentials](#). A 'Migrate to IAM Only' button is also present.
- Activity Tracker event types:** A dropdown menu is set to 'Management' with a 'Save' button.
- Disk encryption:** Yes. Automatically generated disk encryption key.

### STEP 4:

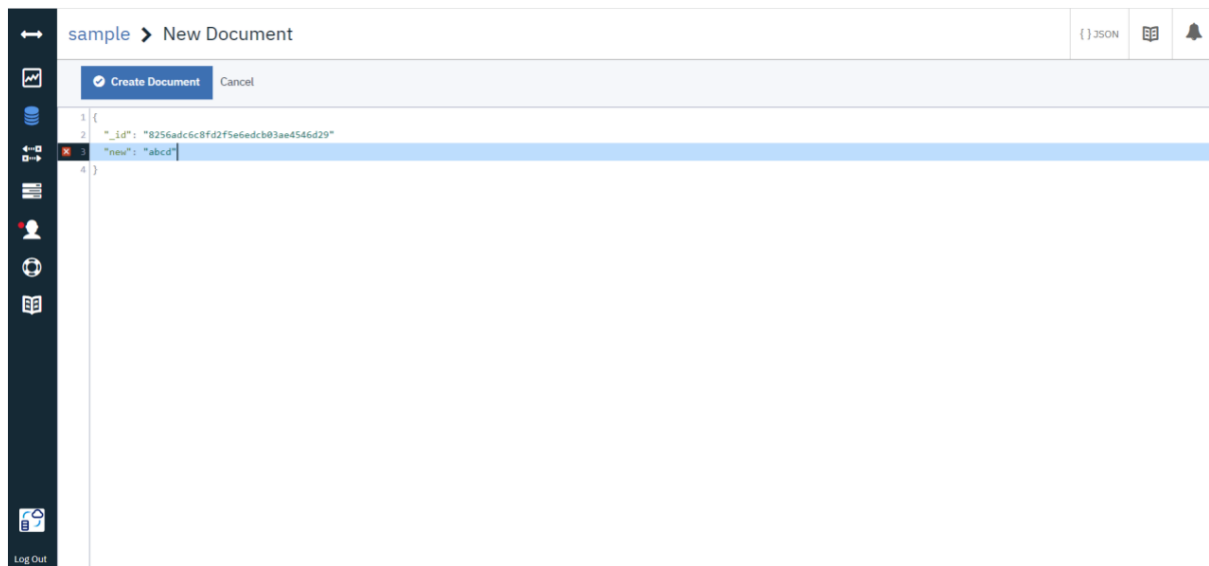
- Give the desired file name and create Database.

The screenshot shows the 'Databases' page in the Cloudant console. The page has a sidebar with navigation icons and a 'Log Out' button. The main area displays a table for 'Your Databases' with columns: Name, Size, # of Docs, and Partitioned. The table is currently empty. A 'Create Database' modal is open on the right side of the page. The modal contains the following fields and options:

- Database name:** A text input field containing the word 'sample'.
- Partitioning:** Two radio button options: 'Non-partitioned - recommended for most workloads' (which is selected) and 'Partitioned'.
- Which should I choose?:** A section with a downward arrow icon.
- Buttons:** 'Cancel' and 'Create' buttons at the bottom of the modal.

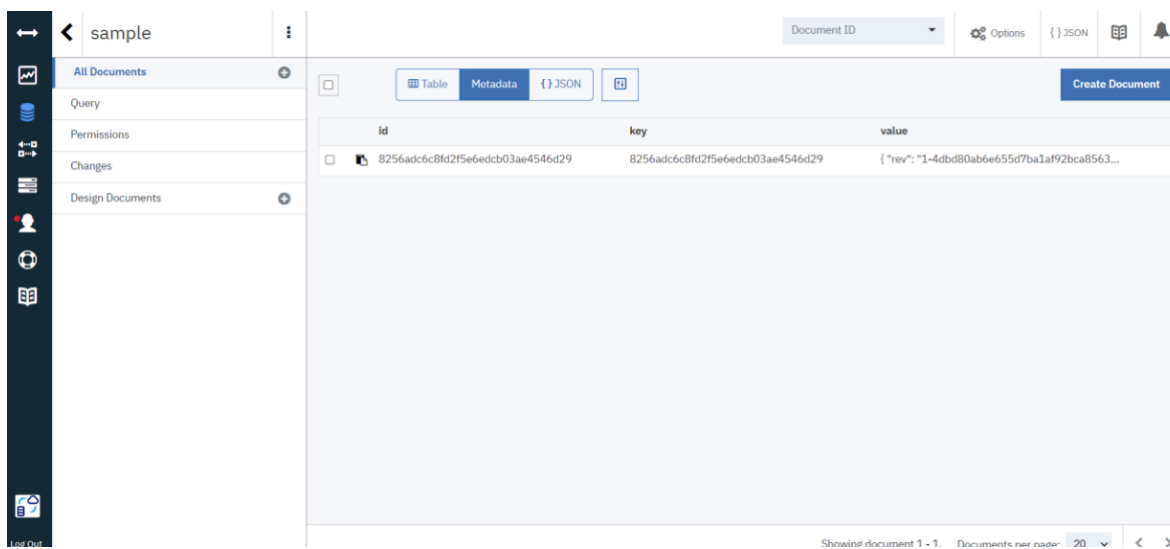
At the bottom of the page, it says 'Showing 1-0 of 0 databa'.

- Create the document with no JSON Error.



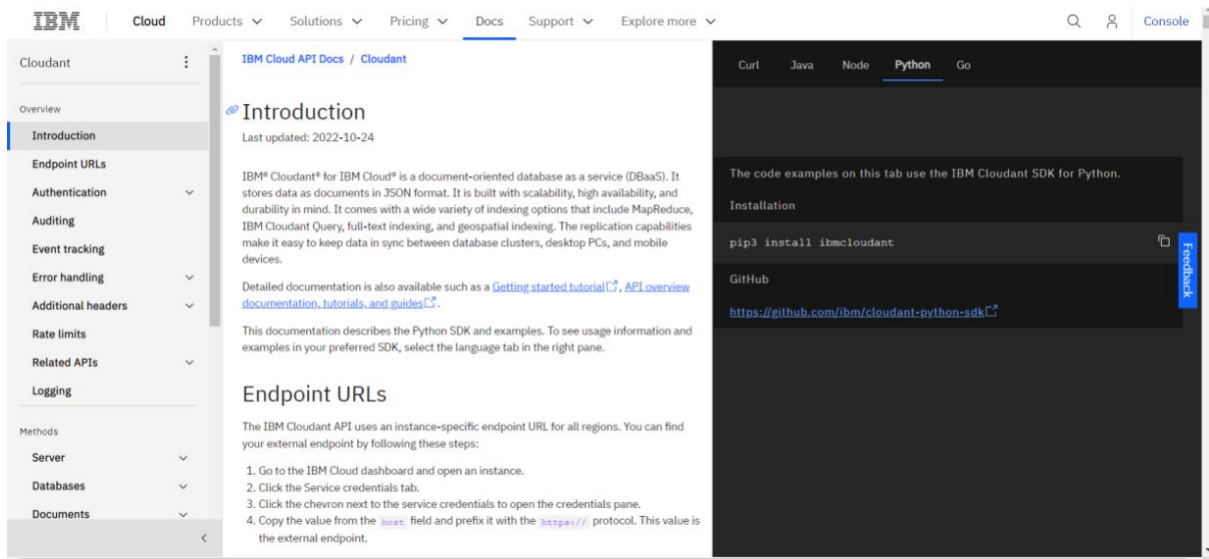
## STEP 5:

- After creating the document go to IBM Cloud Document.





- Pip3 install IBM Cloudant

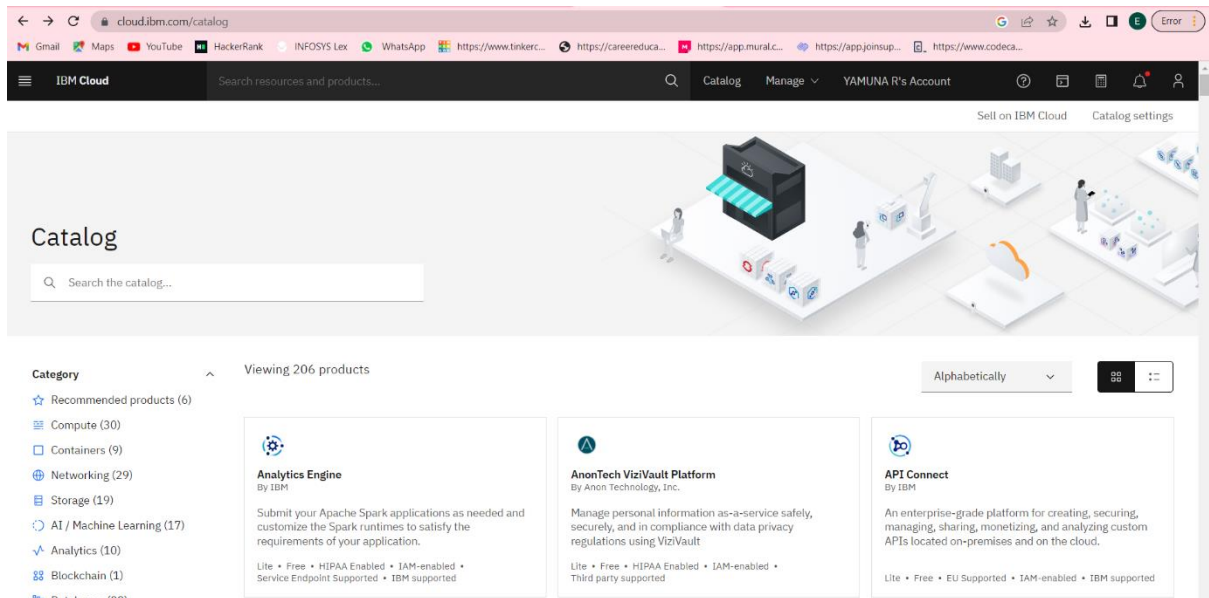


## CREATION OF IBM WATSON IOT PLATFORM AND DEVICES

IBM Watson IoT platform acts as the mediator to connect the web application to IoT device, so create the IBM Watson IoT platform. In order to connect the IoT device to the IBM cloud, create a device in the IBM Watson IoT platform and get the device credentials.

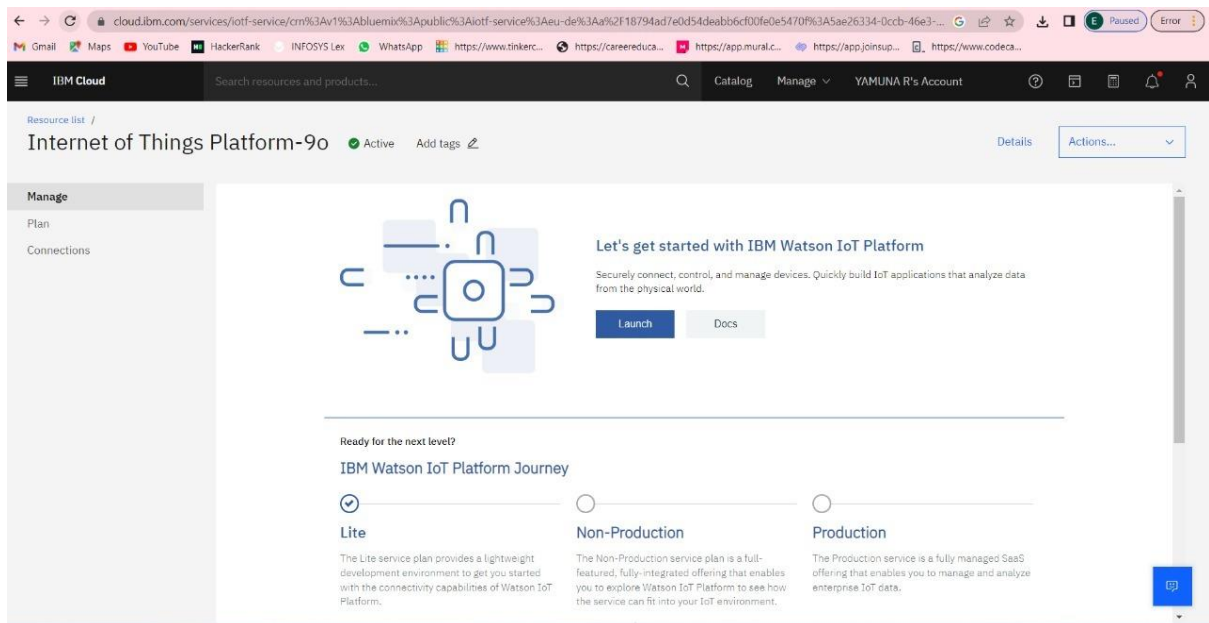
### STEP 1:

- Login in cloud account.
- In dashboard click on catalog.
- Search for internet of things platform



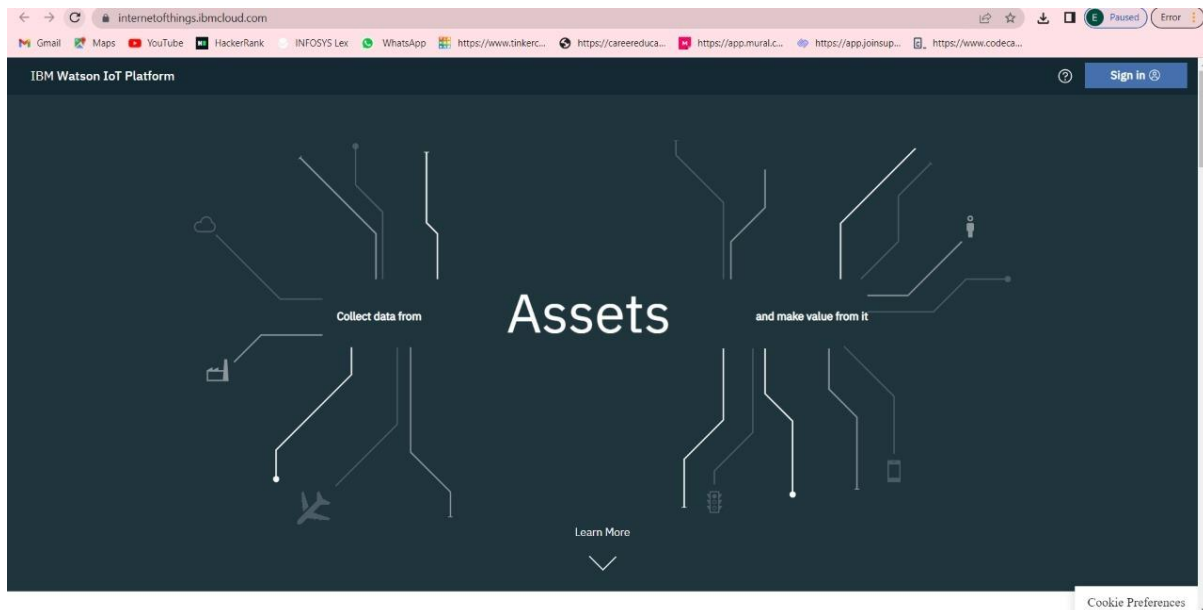
## STEP 2:

- Click on launch



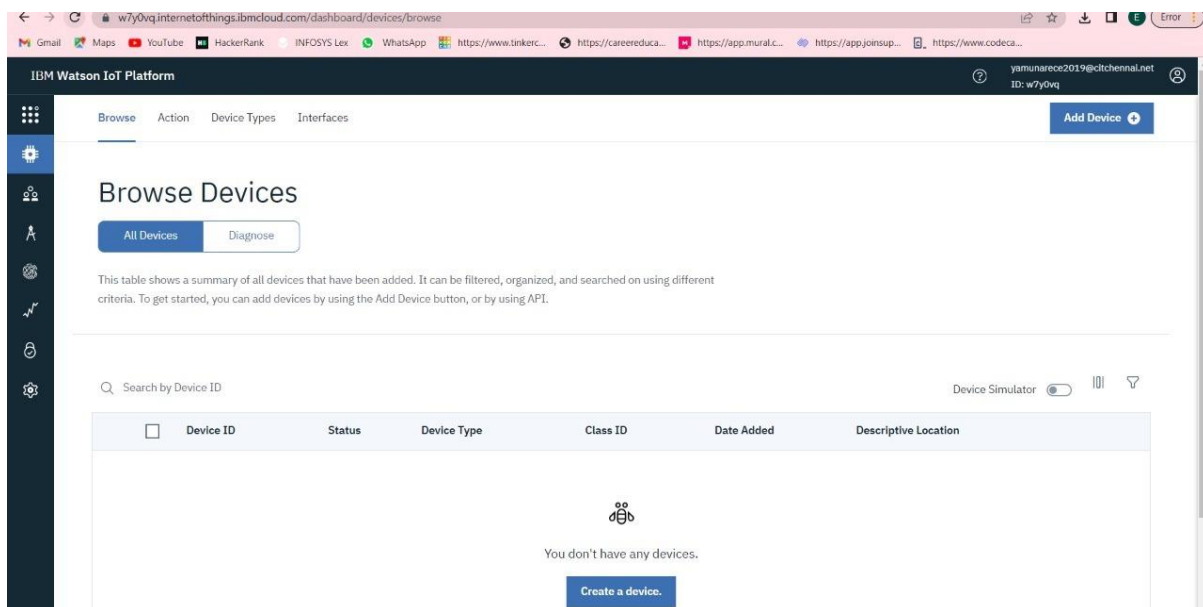
### STEP 3:

- Sign in and select the org id



### STEP 4:

- Will launch the browse device.



## STEP 5:

- Click on add device

IBM Watson IoT Platform

Browse Action Device Types Interfaces

### 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 ☒

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
Raspberry	Disconnected	3478	Device	Nov 18, 2022 2:22 PM	

Items per page 50 | 1-1 of 1 item

1 of 1 page

0 Simulations running

Simulations

Import/Export simulation

2/50 Simulations Running

Select or create a device type...

Device Type 3478

1 Event

2 Devices

S 3478\_2

S 3478\_1

1 x Create Simulated Device Use Registered Device

150 events sent (1 failed) 3.74 KB sent

IBM Watson IoT Platform

Browse Action Device Types Interfaces

Device ID	Status	Device Type	Class ID	Date Added
Raspberry	Disconnected	3478	Device	Nov 18, 2022 2:22 PM
3478_1	Connected	3478	Device	Nov 18, 2022 2:22 PM
3478_2	Connected	3478	Device	Nov 18, 2022 2:22 PM

Items per page 50 | 1-3 of 3 items

←

→

↻

w7y0vq.internetofthings.ibmcloud.com/dashboard/devices/browse

🔍

☆

📄

⌵

⚠️ Error

📧 Gmail

📍 Maps

📺 YouTube

🎮 HackerRank

💻 INFOSYS Lex

📞 WhatsApp

🌐 https://www.tinkerc...

🌐 https://careeduca...

🌐 https://app.mural.c...

🌐 https://app.joinup...

🌐 https://www.codeca...

IBM Watson IoT Platform

🔍

yamunarece2019@cltchennai.net

ID: w7y0vq

🏠

🔧

👤

👤

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🔍

🔧

Browse

Action

Device Types

Interfaces

Add Device

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_1	{\"randomNumber\":22}	json	a few seconds ago
event_1	{\"randomNumber\":1}	json	a few seconds ago
event_1	{\"randomNumber\":47}	json	a few seconds ago
event_1	{\"randomNumber\":41}	json	a few seconds ago
event_1	{\"randomNumber\":22}	json	a few seconds ago

>

☐

3478\_2

● Connected

3478

Device

Nov

>

☐

RaspberryPi

⏸ Disconnected

3478

Device

Nov

2 Simulations running

## CREATION OF NODE RED SERVICE

To create a web application, we need to create a Node-RED service.

Local Node Red Creation:

### STEP 1:

- Search for Node Is in The Google
- Click on Download Link Shown Below the Nodejs
- Download the Windows Installer (.msi file): 64 Bit Or 32 Bit According To Your System

Download the Node.js source code or a pre-built installer for your platform, and start developing today.

LTS Recommended For Most Users	Current Latest Features	
Windows Installer node-v18.12.1-x64.msi	macOS Installer node-v18.12.1.pkg	Source Code node-v18.12.1.tar.gz

Windows Installer (.msi)  
Windows Binary (.zip)  
macOS Installer (.pkg)  
macOS Binary (.tar.gz)  
Linux Binaries (x64)  
Linux Binaries (ARM)  
Source Code

32-bit	64-bit
32-bit	64-bit
64-bit / ARM64	
64-bit	ARM64
64-bit	
ARMv7	ARMv8
node-v18.12.1.tar.gz	

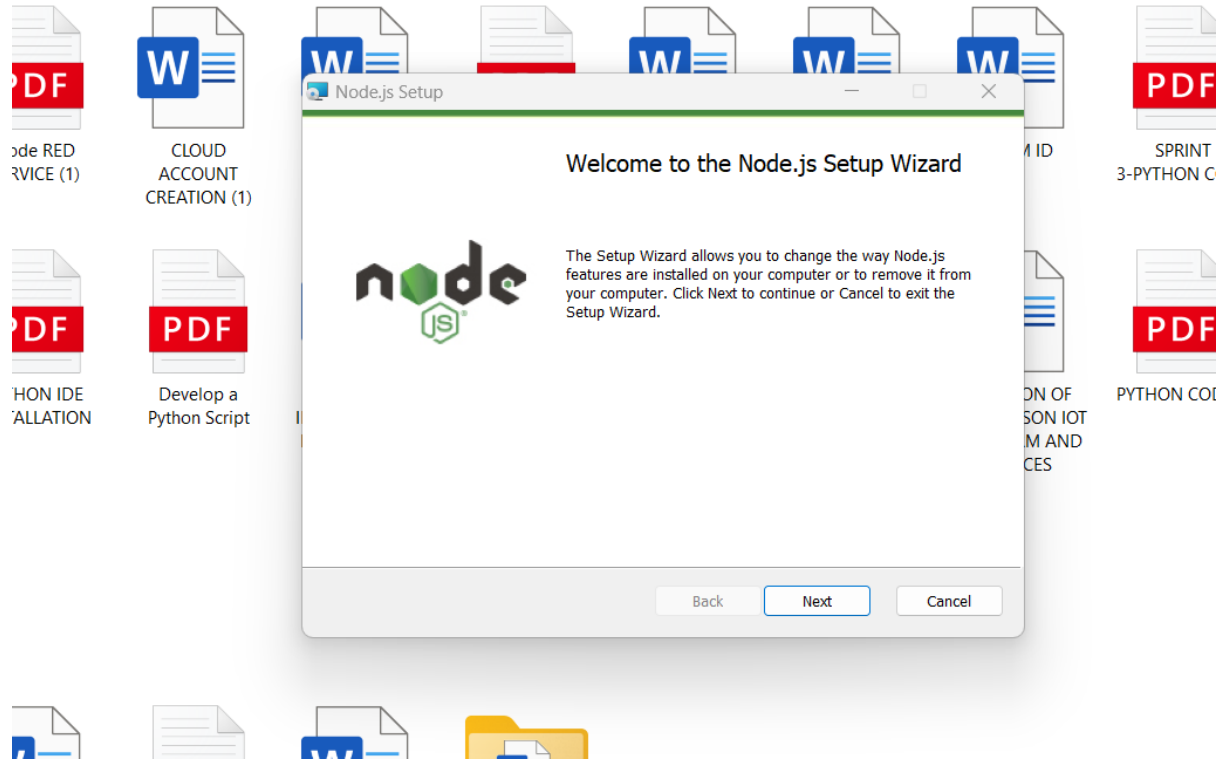
Additional Platforms

Docker Image
Official Node.js Docker Image
64-bit
64-bit
64-bit

- Signed SHASUMS for release files (How to verify)
- All download options
- Installing Node.js via package manager
- Previous Releases
- Nightly builds
- Unofficial builds

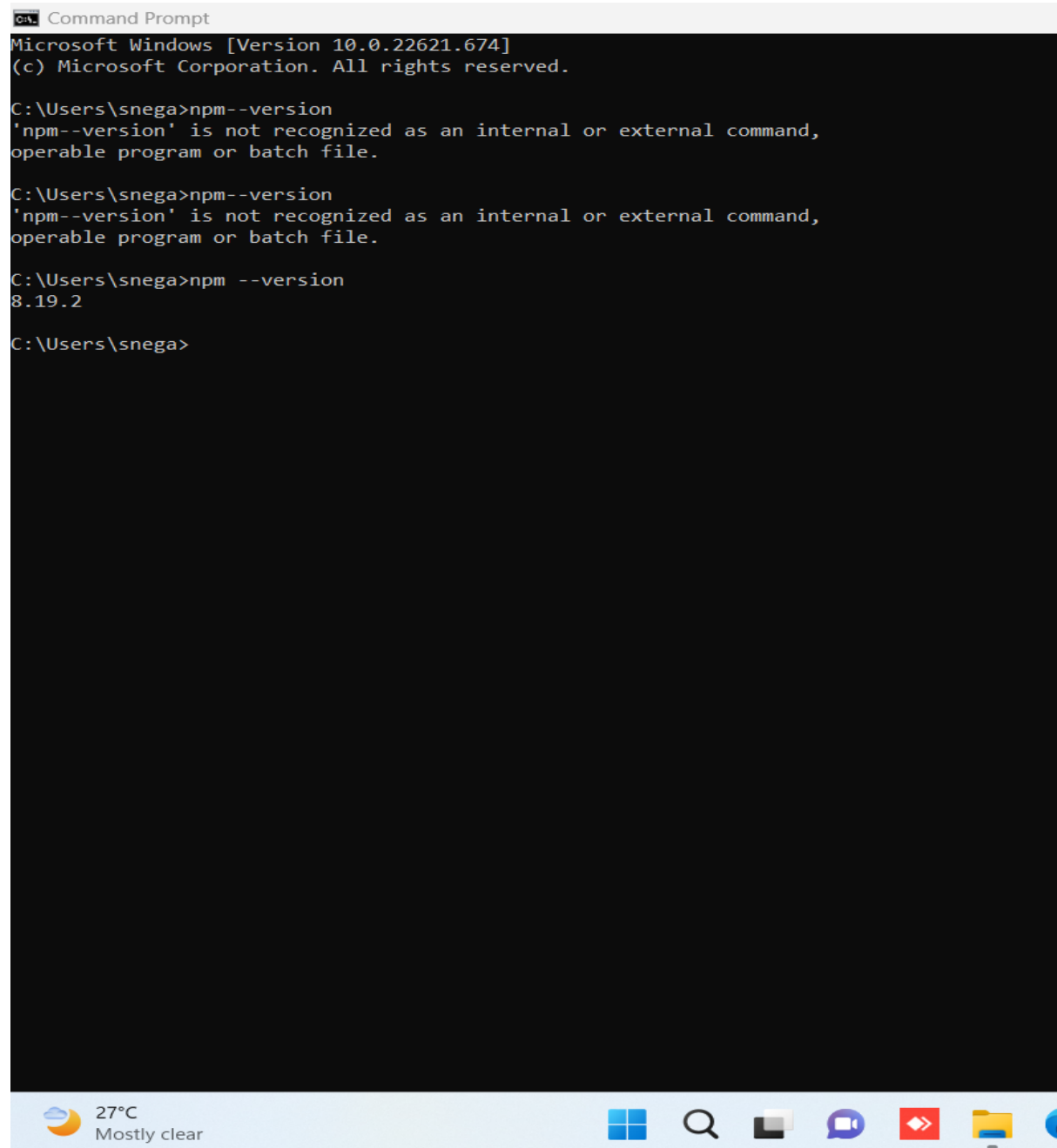
## STEP 2:

- Right Click on The Downloaded .msi File and Extract It
- Open the File and Open Node.Exe



### STEP 3:

- After Installation. Open Cmd (Command Prompt) From Windows Search
- Type `npm --version` and Enter. Output Will Show You Version Number



```
Command Prompt
Microsoft Windows [Version 10.0.22621.674]
(c) Microsoft Corporation. All rights reserved.

C:\Users\sneha>npm--version
'npm--version' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\sneha>npm--version
'npm--version' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\sneha>npm --version
8.19.2

C:\Users\sneha>
```

The screenshot shows a Windows Command Prompt window. The title bar reads 'Command Prompt'. The window content shows the following text: 'Microsoft Windows [Version 10.0.22621.674] (c) Microsoft Corporation. All rights reserved.' followed by the command prompt 'C:\Users\sneha>'. The user enters 'npm--version' and the output is an error message: ''npm--version' is not recognized as an internal or external command, operable program or batch file.' The user enters the command again with a space: 'npm --version', and the output is '8.19.2'. The prompt returns to 'C:\Users\sneha>'. At the bottom of the screen, the Windows taskbar is visible, showing the weather as '27°C Mostly clear' and several application icons.



```

Microsoft Windows [Version 10.0.17763.1577]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\ELCOT>npm --version
8.19.2

C:\Users\ELCOT>node-red
10 Nov 22:48:00 - [info]

Welcome to Node-RED
=====
10 Nov 22:48:00 - [info] Node-RED version: v3.0.2
10 Nov 22:48:00 - [info] Node.js version: v16.18.0
10 Nov 22:48:00 - [info] Windows_NT 10.0.17763 x64 LE
10 Nov 22:48:00 - [info] Loading palette nodes
10 Nov 22:48:17 - [info] Settings file : C:\Users\ELCOT\.node-red\settings.js
10 Nov 22:48:17 - [info] Context store : 'default' [module=memory]
10 Nov 22:48:17 - [info] User directory : C:\Users\ELCOT\.node-red
10 Nov 22:48:17 - [warn] Projects disabled : editorTheme.projects.enabled=false
10 Nov 22:48:17 - [info] Flows file : C:\Users\ELCOT\.node-red\flows.json
10 Nov 22:48:17 - [info] Creating new flow file
10 Nov 22:48:17 - [warn]

-----
Your flow credentials file is encrypted using a system-generated key.

If the system-generated key is lost for any reason, your credentials
file will not be recoverable, you will have to delete it and re-enter
your credentials.

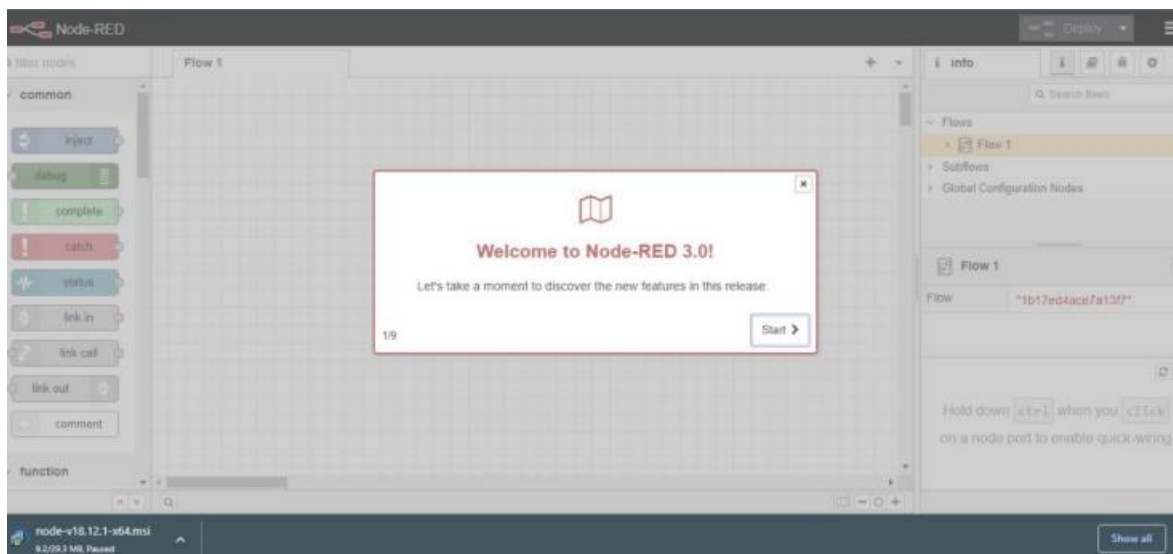
You should set your own key using the 'credentialSecret' option in
your settings file. Node-RED will then re-encrypt your credentials
file using your chosen key the next time you deploy a change.
-----

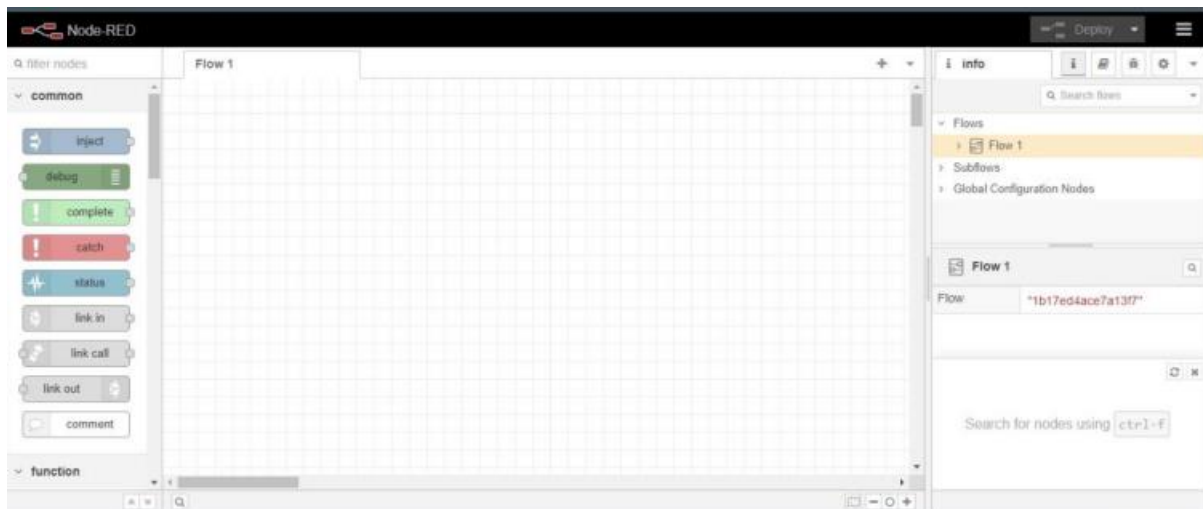
10 Nov 22:48:17 - [info] Server now running at http://127.0.0.1:1880/
10 Nov 22:48:17 - [warn] Encrypted credentials not found
10 Nov 22:48:17 - [info] Starting flows
10 Nov 22:48:17 - [info] Started flows

```

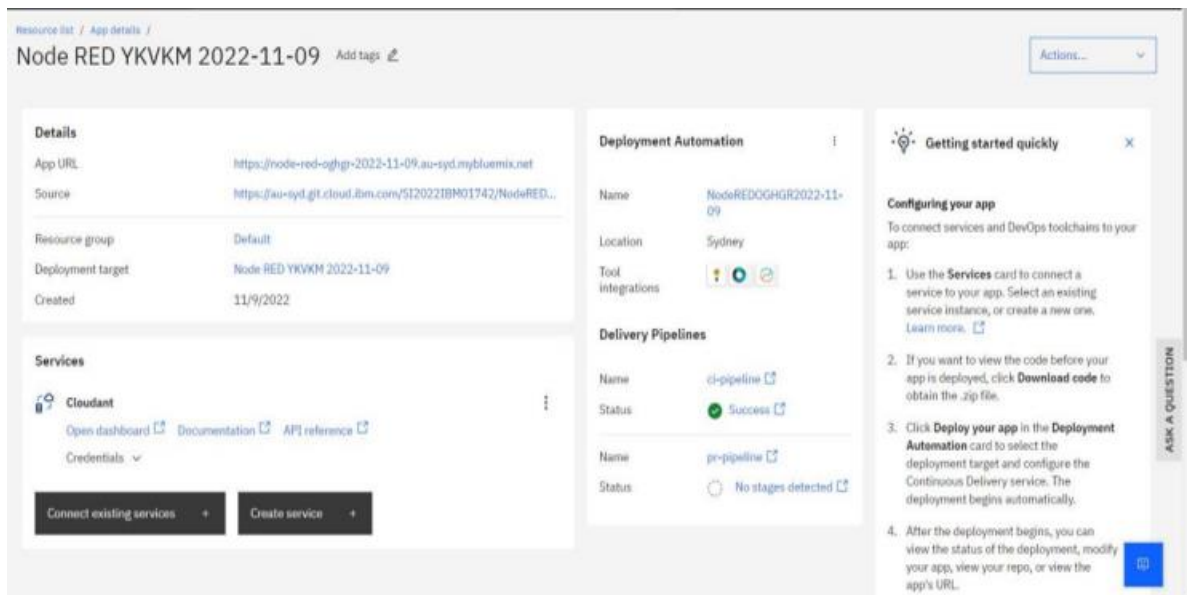
#### STEP 4:

- Type node-red in cmd and u will get the local server link, just open it.





## NODE-RED INSTALLED USING IBM CLOUD ALSO



IBM App Development x Node-RED: node-red-oghr-21 x https://node-red-oghr-2022-11 x IBM Cloud Account x New Tab

node-red-oghr-2022-11-09.au-tyd.mybluemix.net/red/#flow:985792d20721beff8

Node-RED

Filter nodes

Flow 1

common

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

function

- function
- switch
- change
- range

Info

Search flows

Flows

- Flow 1

Subflows

Global Configuration Nodes

Flow 1

Flow: "985792d20721beff8"

You can remove the selected nodes or links with [delete](#)

```
graph LR; A[Return Node-RED!] --> B[msg.payload];
```