

Creating a Node-Red Web Application to view data in Separate Numerical form

Date	07 November 2022
Team ID	PNT2022TMID01909
Project Name	Project - Gas Leakage Monitoring and Alerting System for Industries.

- In IBM cloud dashboard, click on Cloud Foundry apps

The screenshot shows the IBM Cloud dashboard interface. The top navigation bar includes the IBM Cloud logo, a search bar, and user account information. The main content area is titled 'Resource list' and features a table with columns for Name, Group, Location, Product, Status, and Tags. A 'Create resource' button is visible in the top right corner. The table lists a resource named 'Node RED XZSRQ 2022-11-05' under the 'Compute' category, with a status of 'Started'. The left sidebar shows various resource categories like Containers, Networking, Storage, AI / Machine Learning, Analytics, Blockchain, Databases, Developer tools, Logging and monitoring, and Migration. The bottom of the image shows a Windows taskbar with several open applications and a system tray indicating the time as 21:48 on 06-11-2022.

Name	Group	Location	Product	Status	Tags
Node RED XZSRQ 2022-11-05	Gas Leakage Monitoring / Kumaran	London	Node.js	Started	-

- A new window appears where we need to NODE-RED SELDZ app created before.

Click on your Node-RED flow editor where you will be redirected to the Node-RED flow editor.

Node-RED on IBM Cloud

Node-RED

Flow-based programming for the Internet of Things

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.

More information about Node-RED, including documentation, can be found at nodered.org.

[Go to your Node-RED flow editor](#)

[Learn how to customise Node-RED](#)

Activate Windows
Go to Settings to activate Windows.

Customising your instance of Node-RED

WhatsApp

IBM

IoT-B2-2M4E (Morning Session)

SmartHomeAutomationusingIB

Node-RED

127.0.0.1:1880/#flow/b47948623bf1c79f

Node-RED

Deploy

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

"b47948623bf1c79f"

Move the selected nodes using the

↑ ↓ and → keys. Hold ⇧ to nudge

Activate Windows

Go to Settings to activate Windows.

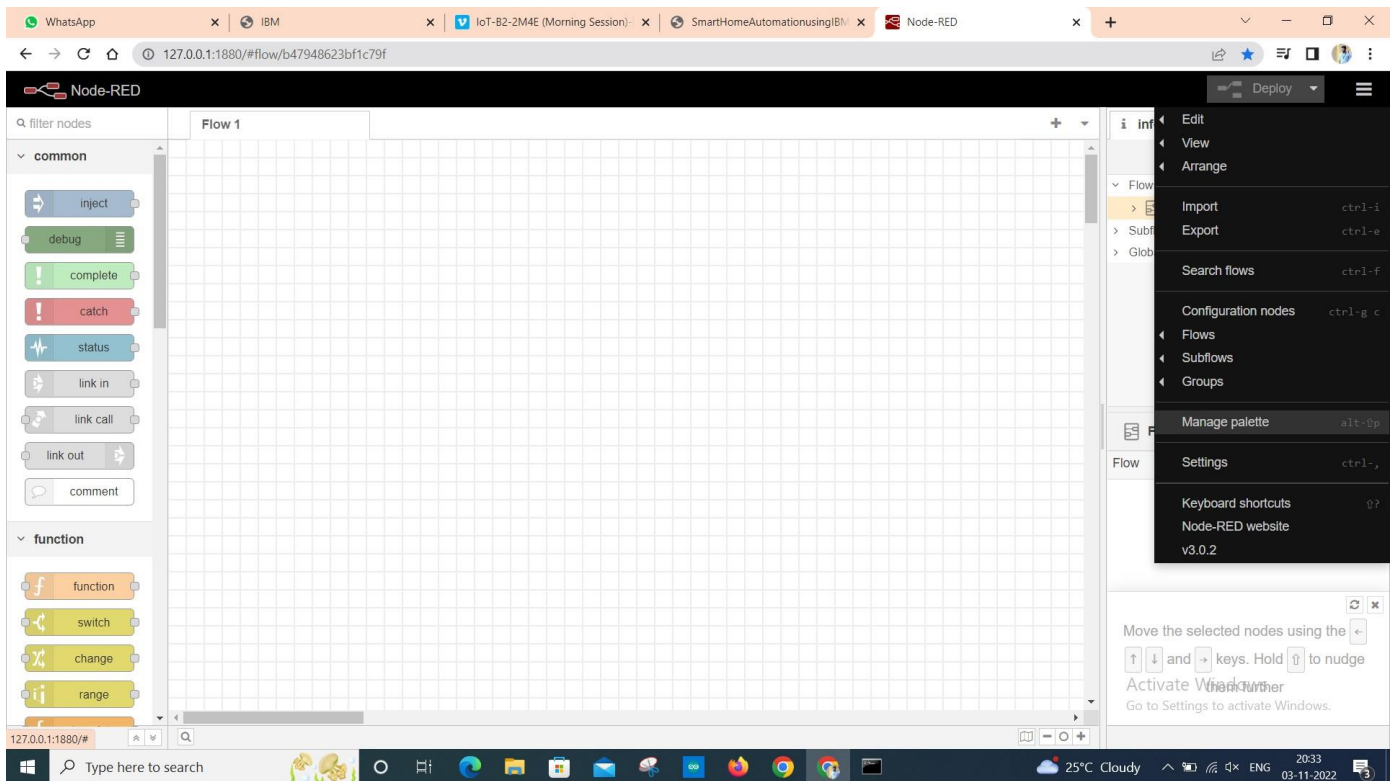
Type here to search

25°C Cloudy

20:33

03-11-2022

To install IBM nodes in Node-red flow editor click on manage palette in the menu option which is on the top-right of the screen.



- In install section search for ibmiot and install the ibm nodes to flow editor.

IBM x WhatsApp x Meet - wkm-egyr-bhi x Node-RED : node-red-xzsrq-202 x +

node-red-xzsrq-2022-11-05-gb.mybluemix.net/red/#flow/89bfb93e7ed6fa1

Node-RED

filter nodes

Flow 1 Flow 2

common

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

function

- function
- switch
- change
- range

User Settings

View Nodes Install

Palette

Keyboard

Search: ibm

- node-red-contrib-ibm-db2
Node-RED nodes to access Db2 cloud services and Db2 LUW
0.3.1 2 years, 3 months ago installed
- node-red-contrib-ibm-igc
Node-RED nodes for integrating with IBM Information Governance Catalog
0.2.2 4 years, 10 months ago install
- node-red-contrib-ibm-maximo-oslc-api
Maximo Oslc Api node for Node-RED
0.1.4 4 years, 6 months ago install
- node-red-contrib-ibm-maximo-rest-api
Maximo REST Api node for Node-RED, based on IBM-Maximo-Oslc-API
0.2.0 4 years, 9 months ago install
- node-red-contrib-ibm-watson-iot
Connect to IBM Watson Internet of Things Platform as a Device or Gateway
0.2.0 6 years, 1 month ago install
- node-red-contrib-ibm-wiotp-device-ops
A collection of Node-RED nodes that can perform a wide range of device and gateway

debug

all nodes all

Activate Windows
Go to Settings to activate Windows.

Type here to search

28°C Haze 21:30 06-11-2022

Search for IBM nodes in the filter nodes section

IBM x WhatsApp x Meet - wkm-egyr-bhi x Node-RED : node-red-xzsrq-202 x +

node-red-xzsrq-2022-11-05-gb.mybluemix.net/red/#flow/760cbcb747147ae1

Node-RED

filter nodes

Flow 1 Flow 2

input

- ibmiot in

output

- ibmiot out

debug

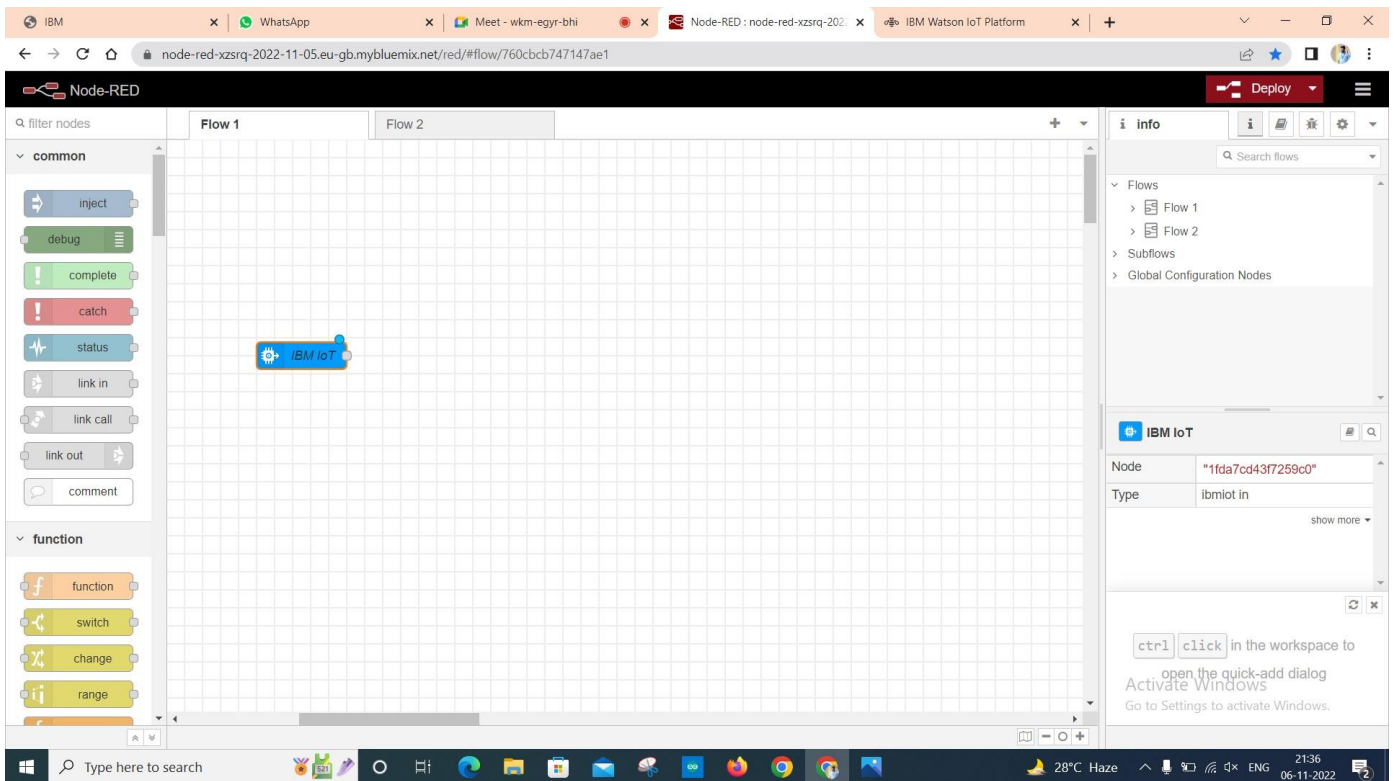
all nodes all

Activate Windows
Go to Settings to activate Windows.

Type here to search

28°C Haze 21:31 06-11-2022

- To Retrieve the data from the IBM IoT platform by using Node-RED IBM IoT Input node and double click on the IBM IoT input node



Select API Key from Authentication in properties.

- In API Key paste API Key, API Token and server name and update it

Edit ibmiot in node

Delete

Cancel

Done

Properties

Authentication

API Key

5ca44b867f225d2d

API Key

5ca44b867f225d2d

Input Type

Device Event

Device Type

All or

Kumaran

Device Id

All or

12345

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

info

Search flows

Flows

Flow 1

Flow 2

Subflows

Global Configuration Nodes

IBM IoT

Node

"c9195d4cbebc02e8"

Type

ibmiot in

show more

ctrl click in the workspace to open the quick-add dialog

Activate Windows

Go to Settings to activate Windows.

- Also update your input type as event, Device type, Device ID, command and format in the propertiees section and click on Done

- To generate API Key go to IBM IoT platform
- In Apps Section -> Click on Generate API Key

The screenshot shows the IBM Watson IoT Platform dashboard. The user is logged in as 'yf0dyy' with ID '310819106044@smartinternz.com'. The 'Generate API Key' button is visible in the top right. Below it, a table lists API keys. The first key, 'a-yf0dyy-iwy9pm96o', is selected, and its details are shown in the 'API Key Information' section.

Key	Description	Role	Expires
a-yf0dyy-iwy9pm96o	API Key for the device simulator	Standard Application	-
a-yf0dyy-tbwrm8i7z2	-	Standard Application	-

The 'API Key Information' section for the selected key shows the following details:

Field	Value
Key	a-yf0dyy-iwy9pm96o
Description	API Key for the device simulator
Date Added	Nov 6, 2022 9:33 PM
Last Update	Nov 6, 2022 9:33 PM
Last Edited By	-
Expires	Never

At the bottom of the dashboard, it indicates '1 Simulation running'.

- Click on Deploy option to check the connection status. If the status is disconnected check for IBM IoT properties and try again.

The screenshot shows the Node-RED interface. A flow named 'Flow 1' is displayed, consisting of an 'IBM IoT' node (labeled 'connected') connected to a 'msg.payload' node. The 'Deploy' button is visible in the top right corner. The debug console on the right shows the resulting JSON payload for the flow.

```

msg.payload: Object
  {
    "Hazardous Gas": 98,
    "Temperature": 96,
    "Humidity": 83,
    "Pressure": 100
  }
11/6/2022, 8:29:05 PM node: b0ec530feac71d47
iot-2type/Kumaran/Id/12345/evt/event_1/fmt/json:
msg.payload: Object
  {
    "Hazardous Gas": 37,
    "Temperature": 13,
    "Humidity": 83,
    "Pressure": 18
  }
11/6/2022, 8:29:08 PM node: b0ec530feac71d47
iot-2type/Kumaran/Id/12345/evt/event_1/fmt/json:
msg.payload: Object
  {
    "Hazardous Gas": 18,
    "Temperature": 59,
    "Humidity": 20,
    "Pressure": 60
  }
11/6/2022, 8:29:11 PM node: b0ec530feac71d47
iot-2type/Kumaran/Id/12345/evt/event_1/fmt/json:
msg.payload: Object
  {
    "Hazardous Gas": 65,
    "Temperature": 83,
    "Humidity": 98,
    "Pressure": 52
  }
11/6/2022, 8:29:14 PM node: b0ec530feac71d47
iot-2type/Kumaran/Id/12345/evt/event_1/fmt/json:
msg.payload: Object
  {
    "Hazardous Gas": 83,
    "Temperature": 74,
    "Humidity": 83,
    "Pressure": 73
  }
11/6/2022, 8:29:17 PM node: b0ec530feac71d47
iot-2type/Kumaran/Id/12345/evt/event_1/fmt/json:
msg.payload: Object
  {
    "Hazardous Gas": 100,
    "Temperature": 10,
    "Humidity": 0,
    "Pressure": 87
  }
  
```

Place the debug node in the flow editor and click on deploy to see the temperature and humidity value in the debug tab

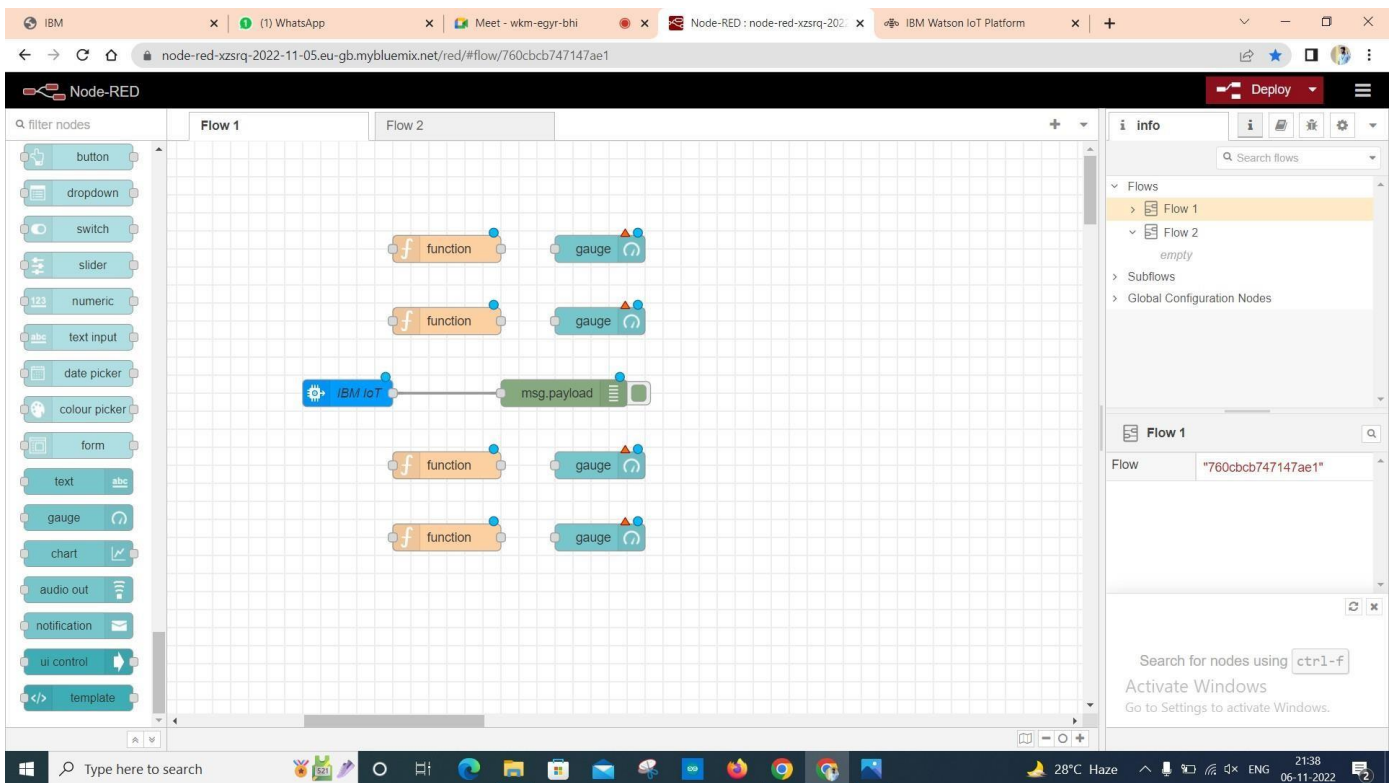
The screenshot shows the Node-RED web interface in a browser. The flow editor displays a flow named 'Flow 1' with two nodes: 'IBM IoT' and 'msg.payload'. The 'debug' tab is active on the right, showing a list of messages. A red box highlights the first three messages, which contain sensor data: Hazardous Gas, Temperature, Humidity, and Pressure. The messages are as follows:

```
11/6/2022, 8:29:05 PM node:b0ec530fac71d47  
iot-2/type/Kumaranid/12345/evt/event_1/tm/json :  
msg.payload : Object  
{ Hazardous Gas: 98, Temperature: 96, Humidity: 83, Pressure: 100 }  
11/6/2022, 8:29:08 PM node:b0ec530fac71d47  
iot-2/type/Kumaranid/12345/evt/event_1/tm/json :  
msg.payload : Object  
{ Hazardous Gas: 37, Temperature: 13, Humidity: 83, Pressure: 18 }  
11/6/2022, 8:29:11 PM node:b0ec530fac71d47  
iot-2/type/Kumaranid/12345/evt/event_1/tm/json :  
msg.payload : Object  
{ Hazardous Gas: 18, Temperature: 59, Humidity: 20, Pressure: 60 }  
11/6/2022, 8:29:14 PM node:b0ec530fac71d47  
iot-2/type/Kumaranid/12345/evt/event_1/tm/json :  
msg.payload : Object  
{ Hazardous Gas: 65, Temperature: 83, Humidity: 98, Pressure: 52 }  
11/6/2022, 8:29:17 PM node:b0ec530fac71d47  
iot-2/type/Kumaranid/12345/evt/event_1/tm/json :  
msg.payload : Object  
{ Hazardous Gas: 83, Temperature: 74, Humidity: 83, Pressure: 73 }  
11/6/2022, 8:29:17 PM node:b0ec530fac71d47  
iot-2/type/Kumaranid/12345/evt/event_1/tm/json :  
msg.payload : Object  
{ Hazardous Gas: 100, Temperature: 10, Humidity: 0, Pressure: 87 }
```

- Install the dashboard node from the manage pallet to create a UI to display temperature and humidity values in the Dashboard

The screenshot shows the Node-RED web interface with the 'Manage' pallet open. The 'Nodes' tab is selected, and the search bar contains 'dashboard'. The 'node-red-dashboard' node is listed as installed. Other dashboard-related nodes are also visible, including 'feezal', 'node-red-contrib-dashboard-average-bars', 'node-red-contrib-dashboard-bar-chart-data', and 'node-red-contrib-dashboard-sum-bars'.

- Drag and place the function node and gauge node in the flow editor to separate the temperature and humidity value



- Double click on function and update the details as follow, ○ Type `msg.payload=msg.payload.Temperature` in one function.
- Type `msg.payload=msg.payload.Humidity` in another function
- Type `msg.payload=msg.payload.HazardousGas`
- Type `msg.payload=msg.payload.d.Pressure`
- To separate the humidity and temperature values from payload and click deploy

Node-RED interface showing a flow named "Flow 1". The flow starts with an "IBM IoT" node (connected) which branches into four parallel function nodes: "Hazardous Gas", "Temperature", "Humidity", and "Pressure". Each function node is connected to a corresponding output node: "Hazardous Gas", "Temperature", "Humidity", and "Pressure". A "msg.payload" node is also connected to the "Temperature" function node. The debug console on the right shows the following log entries:

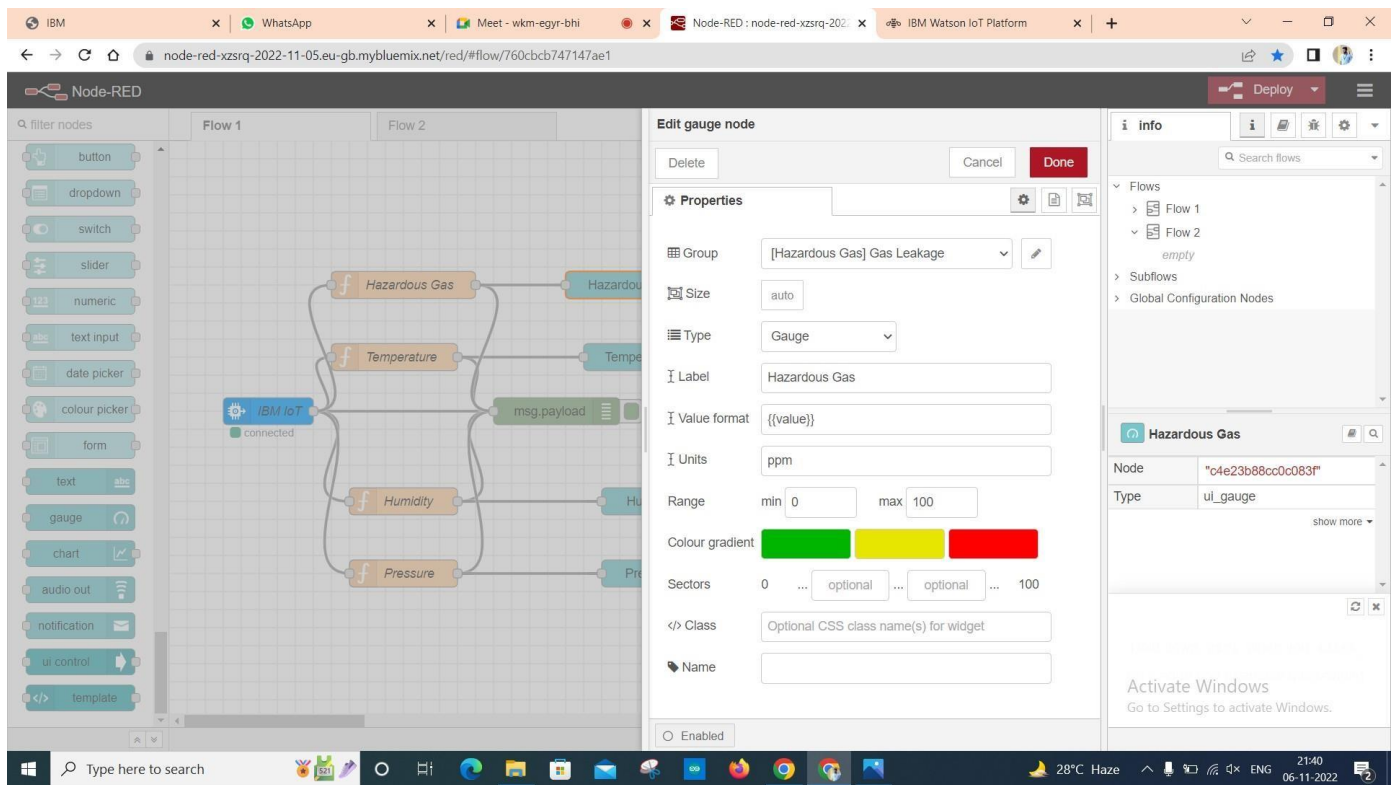
```
11/6/2022, 9:18:35 PM node: b0ec530feac71d47  
iot-2/type/Kumaran/id/12345/evt/event_1/fmt/json :  
msg payload : Object  
{ HazardousGas: 74, Temperature: 74, Humidity: 53, Pressure: 96 }  
11/6/2022, 9:18:35 PM node: b0ec530feac71d47  
iot-2/type/Kumaran/id/12345/evt/event_1/fmt/json :  
msg payload : number  
74  
11/6/2022, 9:18:35 PM node: b0ec530feac71d47  
iot-2/type/Kumaran/id/12345/evt/event_1/fmt/json :  
msg payload : number  
53  
11/6/2022, 9:18:35 PM node: b0ec530feac71d47  
iot-2/type/Kumaran/id/12345/evt/event_1/fmt/json :  
msg payload : number  
96  
11/6/2022, 9:18:35 PM node: b0ec530feac71d47  
iot-2/type/Kumaran/id/12345/evt/event_1/fmt/json :  
msg payload : number  
74  
11/6/2022, 9:18:35 PM node: b0ec530feac71d47  
iot-2/type/Kumaran/id/12345/evt/event_1/fmt/json :  
msg payload : Object  
{ HazardousGas: 64, Temperature: 9, Humidity: 90, Pressure: 24 }  
11/6/2022, 9:18:35 PM node: b0ec530feac71d47  
iot-2/type/Kumaran/id/12345/evt/event_1/fmt/json :  
msg payload : Object  
{ HazardousGas: 64, Temperature: 9, Humidity: 90, Pressure: 24 }
```

Select gauge function and these nodes to temperature, pressure, hazardous gas and humidity

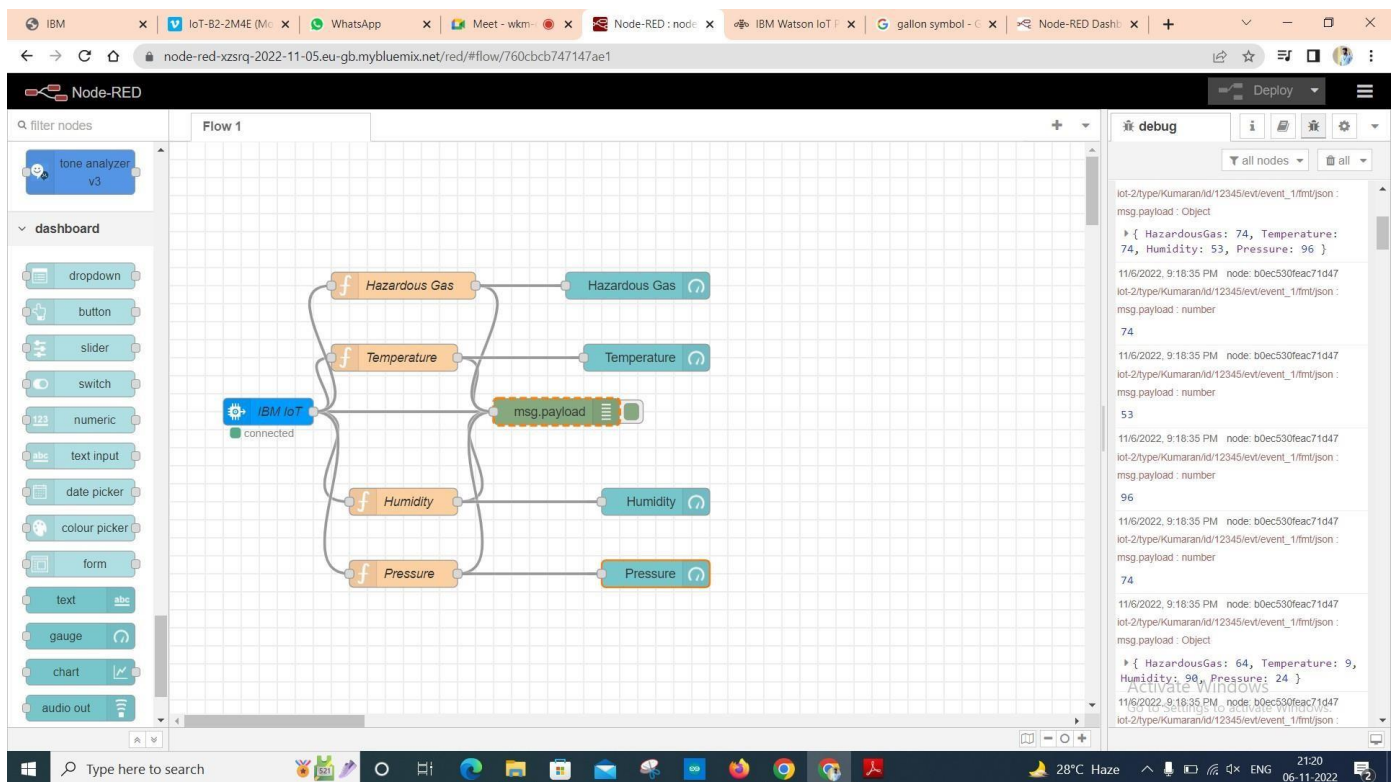
Node-RED interface showing the same flow as above. The "Temperature", "Hazardous Gas", "Humidity", and "Pressure" output nodes are now replaced with "gauge" nodes. The debug console on the right shows the following log entries:

```
11/6/2022, 9:18:35 PM node: b0ec530feac71d47  
iot-2/type/Kumaran/id/12345/evt/event_1/fmt/json :  
msg payload : number  
2  
11/6/2022, 9:18:35 PM node: b0ec530feac71d47  
iot-2/type/Kumaran/id/12345/evt/event_1/fmt/json :  
msg payload : number  
68  
11/6/2022, 9:18:35 PM node: b0ec530feac71d47  
iot-2/type/Kumaran/id/12345/evt/event_1/fmt/json :  
msg payload : number  
94  
11/6/2022, 9:18:35 PM node: b0ec530feac71d47  
iot-2/type/Kumaran/id/12345/evt/event_1/fmt/json :  
msg payload : number  
13  
11/6/2022, 9:18:35 PM node: b0ec530feac71d47  
iot-2/type/Kumaran/id/12345/evt/event_1/fmt/json :  
msg payload : Object  
{ HazardousGas: 74, Temperature: 74, Humidity: 53, Pressure: 96 }  
11/6/2022, 9:18:35 PM node: b0ec530feac71d47  
iot-2/type/Kumaran/id/12345/evt/event_1/fmt/json :  
msg payload : number  
74  
11/6/2022, 9:18:35 PM node: b0ec530feac71d47  
iot-2/type/Kumaran/id/12345/evt/event_1/fmt/json :  
msg payload : Object  
{ HazardousGas: 64, Temperature: 9, Humidity: 90, Pressure: 24 }
```

Edit temperature, hazardous gas, pressure and humidity nodes and deploy it.



○ After editing the nodes, deploy it



RESULT:

Thus, the Node-Red Web Application is created successfully.

