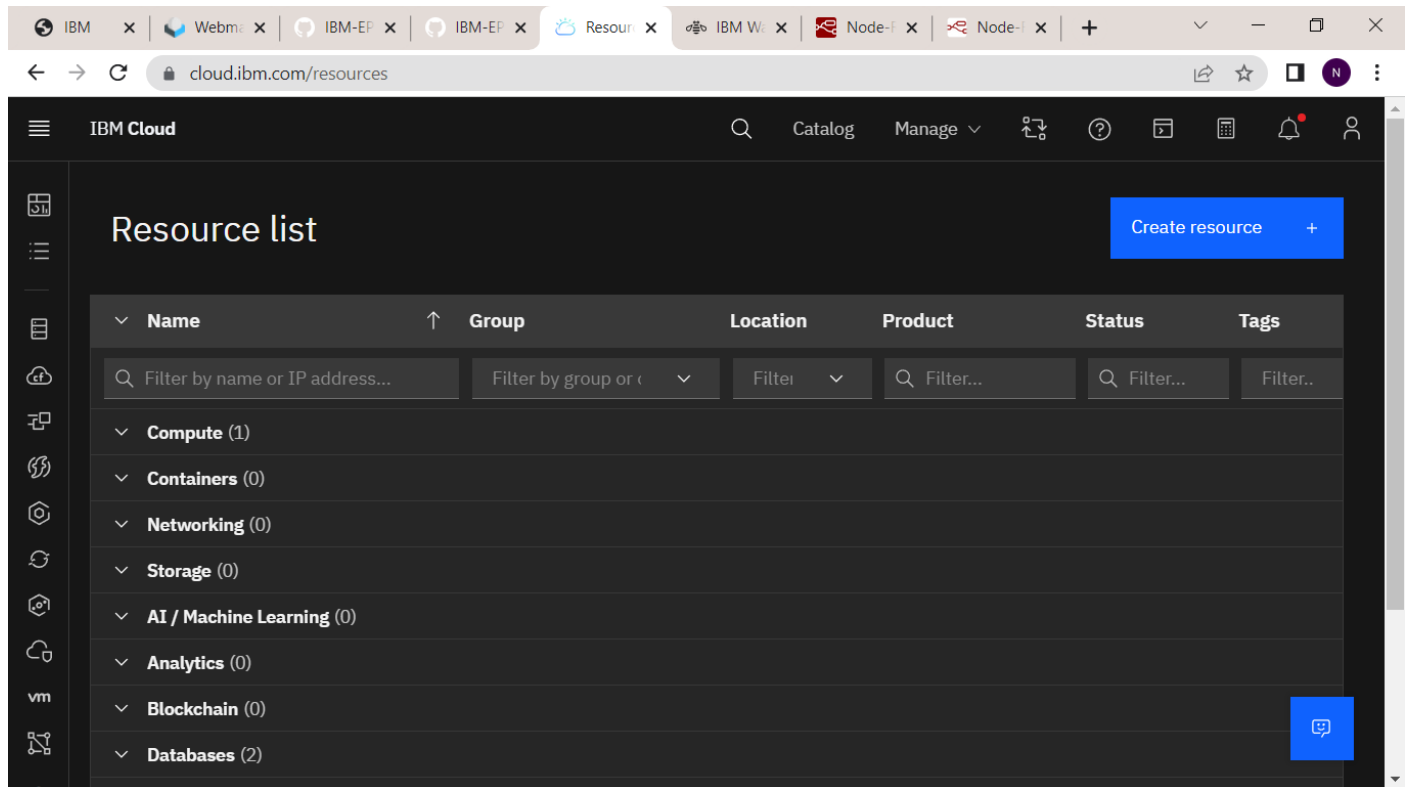


Creating a Node-Red Web Application to view data in Separate Numerical form

Date	07 November 2022
Team ID	PNT2022TMID27080
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 browser tabs at the top include 'IBM', 'Webm...', 'IBM-EP', 'IBM-EP', 'Resour...', 'IBM W...', 'Node-...', and 'Node-...'. The address bar shows 'cloud.ibm.com/resources'. The main header of the dashboard includes the 'IBM Cloud' logo, a search icon, and navigation links for 'Catalog' and 'Manage'. A 'Create resource' button is visible in the top right corner. The main content area is titled 'Resource list' and features a table with columns: Name, Group, Location, Product, Status, and Tags. Below the table header, there are filter boxes for each column. The table lists several resource categories with their counts: Compute (1), Containers (0), Networking (0), Storage (0), AI / Machine Learning (0), Analytics (0), Blockchain (0), and Databases (2). A blue chat icon is located in the bottom right corner of the table area.

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

The screenshot displays the IBM Cloud Resource List page. The interface includes a top navigation bar with the IBM Cloud logo and a search bar. Below the navigation bar, there's a sidebar with icons for various cloud services. The main content area shows a table of resources. The table has columns: Name, Group, Location, Product, Status, and Tags. A resource named 'Node RED ZUOID 2022-11-07' is highlighted, and a tooltip shows its details: 'Node RED ZUOID 2022-11-07'. The resource is in the 'Nandha kumar / dev' group, located in 'London', and is a 'Node.js' product. The status is 'Started'.

Name	Group	Location	Product	Status	Tags
Node RED ZUOID 2022-11-07	Nandha kumar / dev	London	Node.js	Started	—

- Click on Visit App URL in Node RED SELDZ service dashboard.

IBM Cloud Foundry Public is being deprecated. Please see [full details](#).

Node RED ZUOID 2022-11-07

Running [Visit App URL](#) [Add tags](#) [Details](#) [Actions...](#)

Getting started

Overview

Runtime

Connections

Logs

API Management

Autoscaling

Instances

Health **100%**

1/1 instance(s) are running

MB memory per instance

0 2048 256

Runtime

Node.js

256
Total MB allocation

1.75 GB still available

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

The screenshot shows a web browser with multiple tabs. The active tab is titled 'node-red-zuoid-2022-11-07.eu-gb.mybluemix.net'. The page has a dark header with the text 'Node-RED on IBM Cloud'. Below this is a large red banner with the text 'Node-RED' in white, followed by 'Flow-based programming for the Internet of Things'. Underneath the banner, there is a paragraph: 'Node-RED is a programming tool for wiring together hardware devices, APIs and online services in new and interesting ways.' This is followed by another paragraph: 'This instance is running as an IBM Cloud application, giving it access to the wide range of services available on the platform.' To the right of these paragraphs is a large red button that says 'Go to your Node-RED flow editor'. Below the button is a link: 'Learn how to customise Node-RED'. At the bottom left of the page, the URL 'https://node-red-zuoid-2022-11-07.eu-gb.mybluemix.net/red/' is visible.

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.

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

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

<https://node-red-zuoid-2022-11-07.eu-gb.mybluemix.net/red/>

The screenshot shows the Node-RED flow editor interface. The browser tabs at the top include 'IBM', 'IBM-Project', 'IBM-EPBL/IB', 'NodeREDZU', 'Node-RED', and 'IOT/ibm_cod'. The address bar shows 'node-red-zuoid-2022-11-07.eu-gb.mybluemix.net/red/#flow/6ef9fbfc58fa5dc2'. The interface has a dark header with the 'Node-RED' logo and a 'Deploy' button. On the left is a 'filter nodes' search bar and a list of common nodes: inject, debug, complete, catch, status, link in, link call, link out, and comment. The main workspace is a grid with two tabs: 'Flow 1' and 'Flow 2'. On the right is an 'info' panel with a 'Search flows' bar. It shows a list of flows: 'Flow 1' and 'Flow 2' (highlighted). Below this, it shows 'Subflows' and 'Global Configuration Nodes'. The 'Flow 2' section shows the flow ID '6ef9fbfc58fa5dc2'. At the bottom of the info panel, there is a note: 'ctrl click in the workspace to open the quick-add dialog'.

Node-RED

Deploy

filter nodes

Flow 1 Flow 2

common

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

info

Search flows

Flows

- Flow 1
- Flow 2

Subflows

Global Configuration Nodes

Flow 2

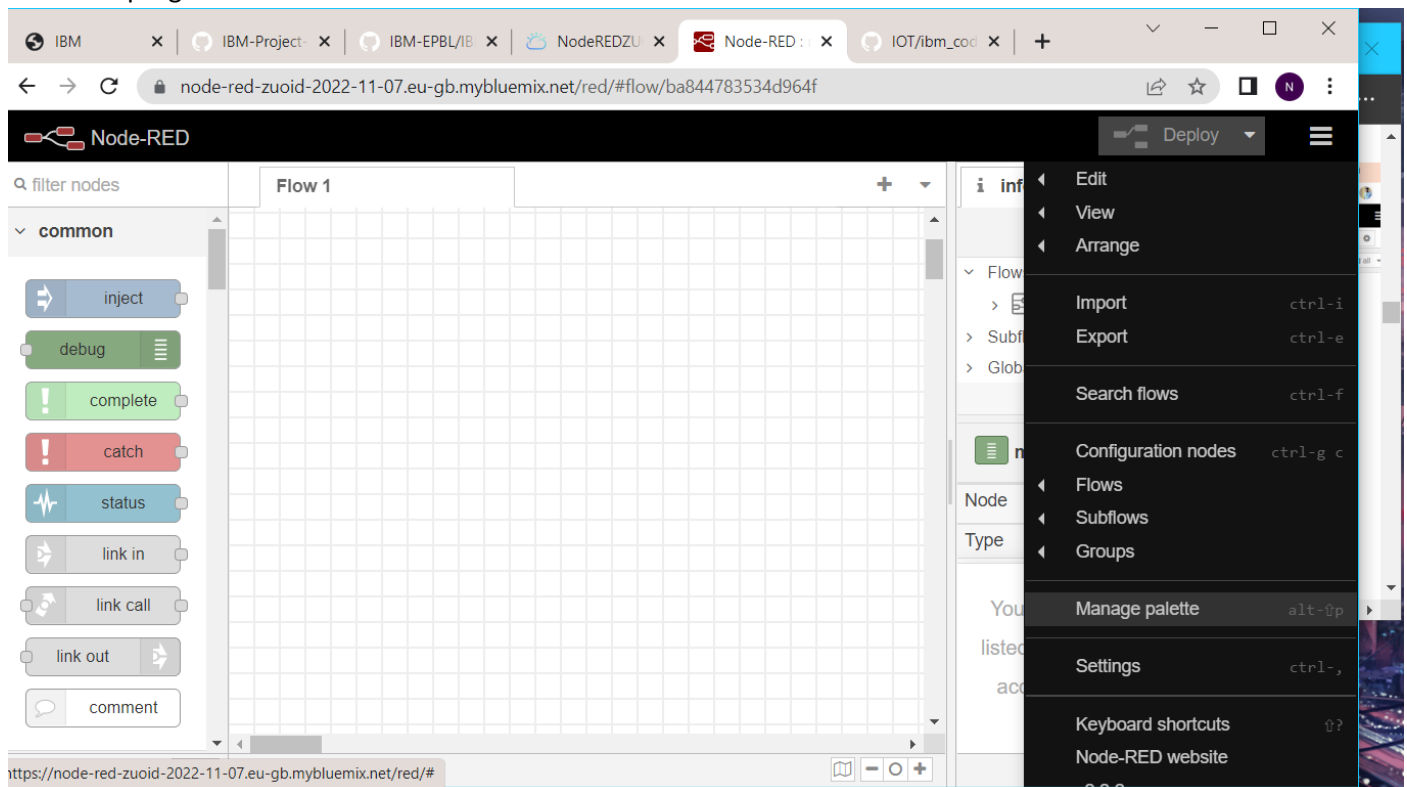
Flow "6ef9fbfc58fa5dc2"

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

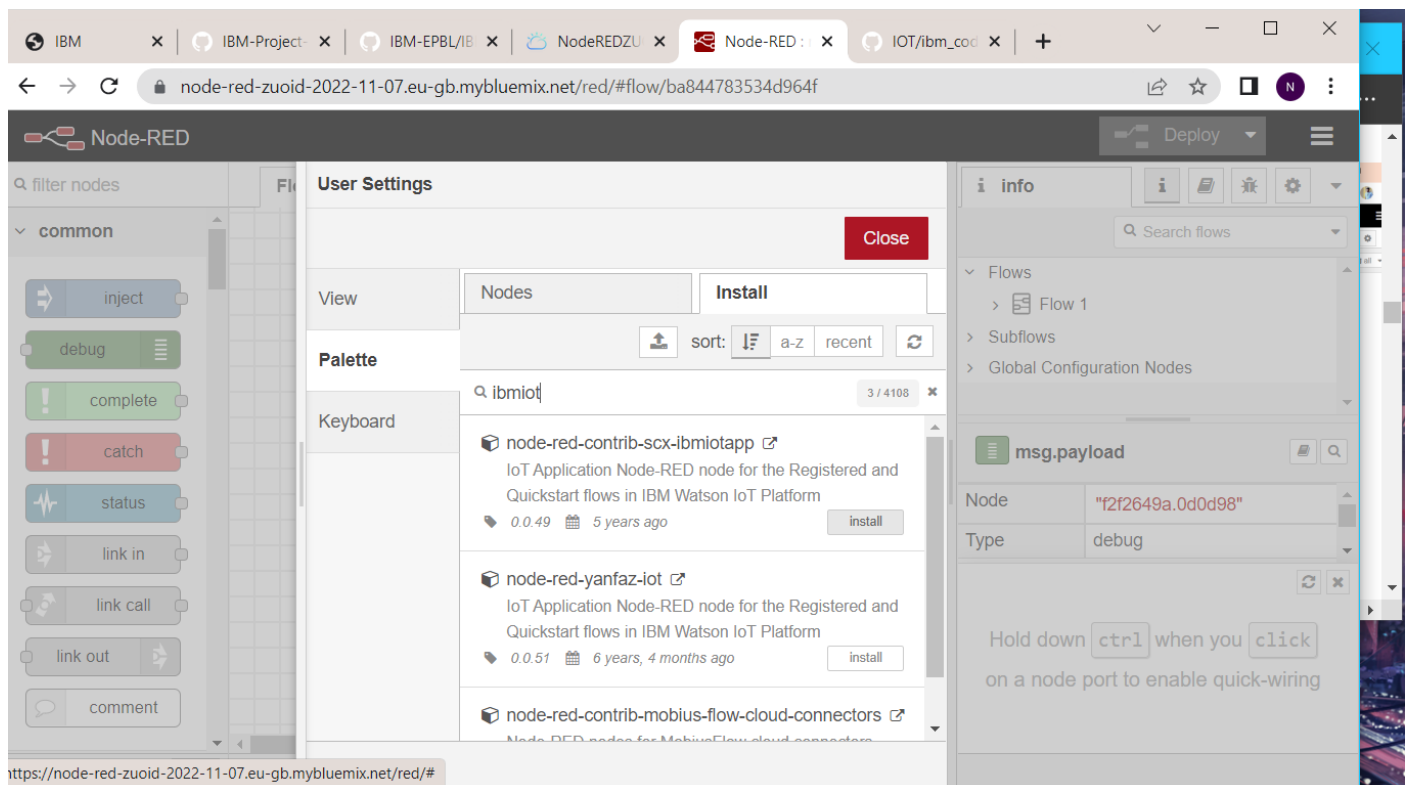


○

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.



○

Search for IBM nodes in the filter nodes section

The screenshot shows the Node-RED web interface in a browser. The top bar includes a 'Deploy' button and a menu icon. The left sidebar has a search bar with 'ibm' entered. Below the search bar, the 'input' category is expanded, showing an 'ibmiot in' node. The 'output' category is also expanded, showing an 'ibmiot out' node. The main workspace is empty. The right sidebar shows the 'info' panel with a search bar and a list of flows. Below the list, the 'IBM IoT' section is expanded, showing a node with ID 'ae6ddad1b995b021' and type 'ibmiot in'.

- 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

The screenshot shows the Node-RED web interface. The left sidebar has a search bar with 'filter nodes' entered. Below the search bar, the 'common' category is expanded, showing various nodes including 'inject', 'debug', 'complete', 'catch', 'status', 'link in', 'link call', 'link out', and 'comment'. The main workspace shows a single 'IBM IoT' node. The right sidebar shows the 'info' panel with a search bar and a list of flows. Below the list, the 'IBM IoT' section is expanded, showing a node with ID '18a789e653486de9' and type 'ibmiot in'. The bottom of the info panel shows a message: 'Pressing enter will edit the first node in the current selection'.

○

Select API Key from Authentication in properties.

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

The screenshot shows the Node-RED web interface in a browser. The address bar displays the URL: `node-red-zuoid-2022-11-07.eu-gb.mybluemix.net/red/#`. The interface is divided into three main sections:

- Left Panel (Nodes):** A list of common nodes including inject, debug, complete, catch, status, link in, link call, link out, and comment.
- Center Panel (Edit ibmiot in node):** A configuration panel for the 'ibmiot in' node. It includes a 'Delete' button, 'Cancel', and 'Done' buttons. The 'Properties' section contains the following settings:
 - Authentication:** API Key
 - API Key:** 857a9d97b49f4307
 - Input Type:** Device Event
 - Device Type:** All or TestDeviceType
 - Device Id:** All or 2022
 - Event:** All or +
 - Format:** All or json
- Right Panel (Info):** An information panel showing the node's details. It includes a search bar, a list of flows (Flow 1, Flow 2, Flow 3), and a section for the 'IBM IoT' node. The node's ID is '18a789e653486de9' and its type is 'ibmiot in'. Below this, there is a note: 'Switch flow tabs with ctrl-[and ctrl-]'.

- Also update your input type as event, Device type, Device ID, command and format in the properties 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 top navigation bar includes the IBM logo and the text 'IBM Watson IoT Platform'. The user's email '310819106054@smartinternz.com' and ID 'ID: q26y5w' are displayed in the top right corner. The main content area is titled 'Browse IBM Cloud Apps' and features a '+ Generate API Key' button. Below this, a table lists API keys. The first key is 'a-q26y5w-q7sakhzog4' with the description 'API Key for the device...' and role 'Standard Application'. A modal window titled 'API Key Information' is open, showing details for the selected key. The modal includes a table with the following information:

Key	Description	Date Added	Last Update	Last Edited By	Expires
a-q26y5w-q7sakhzog4	API Key for the device simulator	Nov 9, 2022 9:34 PM	Nov 9, 2022 9:34 PM	-	Never

At the bottom of the modal, it states '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 web interface in a browser. The flow editor displays a single flow with two nodes: an 'IBM IoT' node (blue with a gear icon) and a 'msg.payload' node (green with a list icon). The 'IBM IoT' node is labeled 'connected'. The left sidebar shows the 'common' node palette with various nodes like inject, debug, complete, catch, status, link in, link call, link out, and comment. The right sidebar shows the 'debug' tab with a list of messages. The messages are JSON objects containing temperature and humidity data, such as:

```
{ temperature: 75, humidity: 97 }
```

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 after adding a 'debug' node to the flow. The flow now consists of three nodes: 'IBM IoT', 'debug', and 'msg.payload'. The 'debug' node is highlighted with an orange dashed border. The right sidebar shows the 'debug' tab with a list of messages. One message is highlighted with a red box:

```
{ temperature: 14, humidity: 73 }
```

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

- 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

The screenshot shows the Node-RED web interface. In the center, a flow is being edited. It starts with an 'IBM IoT' node (green) connected to four function nodes (orange): 'HazardousGas', 'Temperature', 'Humidity', and 'Pressure'. Each function node is connected to a corresponding output node (blue): 'HazardousGas', 'Temperature', 'Humidity', and 'Pressure'. The 'msg.payload' node (green) is also connected to the function nodes. The left sidebar shows the 'input' and 'output' sections with 'ibmiot in' and 'ibmiot out' nodes. The right sidebar shows the 'debug' console with a list of messages. The current message is an object: `{ temperature: 47, humidity: 5, Hazardousgas: 93, pressure: 37 }`.

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

This screenshot shows the same Node-RED interface as the previous one, but with the 'msg.payload' node highlighted in orange. The flow remains the same. The debug console shows a new message: `{ temperature: 93, humidity: 81, Hazardousgas: 96, pressure: 97 }`.

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

IBM | Webma | IBM-EPI | IBM-EPI | Service | IBM Wa | Noc x | IOT/ibm | Node-R | Node-R | +

node-red-zuoid-2022-11-07.eu-gb.mybluemix.net/red/#flow/ba844783534d964f

Node-RED

Flow 1

input

ibmiot in

output

ibmiot out

Edit gauge node

Delete Cancel Done

Properties

Group [Hazardous gas] Gas leakage

Size auto

Type Compass

Label Pressure

Value format {{value}}

Units %

Range min 0 max 100

Enabled

debug

all nodes all

11/9/2022, 9:19:39 PM node: f2f2649a.0d0d98
iot-2/type/TestDeviceType/id/2022/evt/status/fmt/json :
msg.payload : number
18

11/9/2022, 9:19:39 PM node: f2f2649a.0d0d98
iot-2/type/TestDeviceType/id/2022/evt/status/fmt/json :
msg.payload : number
110

11/9/2022, 9:19:39 PM node: f2f2649a.0d0d98
iot-2/type/TestDeviceType/id/2022/evt/status/fmt/json :
msg.payload : number
80

11/9/2022, 9:19:39 PM node: f2f2649a.0d0d98
iot-2/type/TestDeviceType/id/2022/evt/status/fmt/json :
msg.payload : number
88

11/9/2022, 9:19:41 PM node: f2f2649a.0d0d98

After editing the nodes, deploy it

IBM | Webma | IBM-EPI | IBM-EPI | Service | IBM Wa | Noc x | IOT/ibm | Node-R | Node-R | +

node-red-zuoid-2022-11-07.eu-gb.mybluemix.net/red/#flow/ba844783534d964f

Node-RED

Flow 1 Flow 2

input

ibmiot in

output

ibmiot out

IBM IoT connected

HazardousGas

Temperature

Humidity

Pressure

HazardousGas

Temperature

Humidity

Pressure

msg.payload

debug

all nodes all

11/9/2022, 9:18:41 PM node: f2f2649a.0d0d98
iot-2/type/TestDeviceType/id/2022/evt/status/fmt/json :
msg.payload : number
40

11/9/2022, 9:18:42 PM node: f2f2649a.0d0d98
iot-2/type/TestDeviceType/id/2022/evt/status/fmt/json :
msg.payload : number
41

11/9/2022, 9:18:43 PM node: f2f2649a.0d0d98
iot-2/type/TestDeviceType/id/2022/evt/status/fmt/json :
msg.payload : Object
{ temperature: 93, humidity: 81, Hazardousgas: 96, pressure: 97 }

11/9/2022, 9:18:44 PM node: f2f2649a.0d0d98
iot-2/type/TestDeviceType/id/2022/evt/status/fmt/json :
msg.payload : number
96

RESULT:

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

.