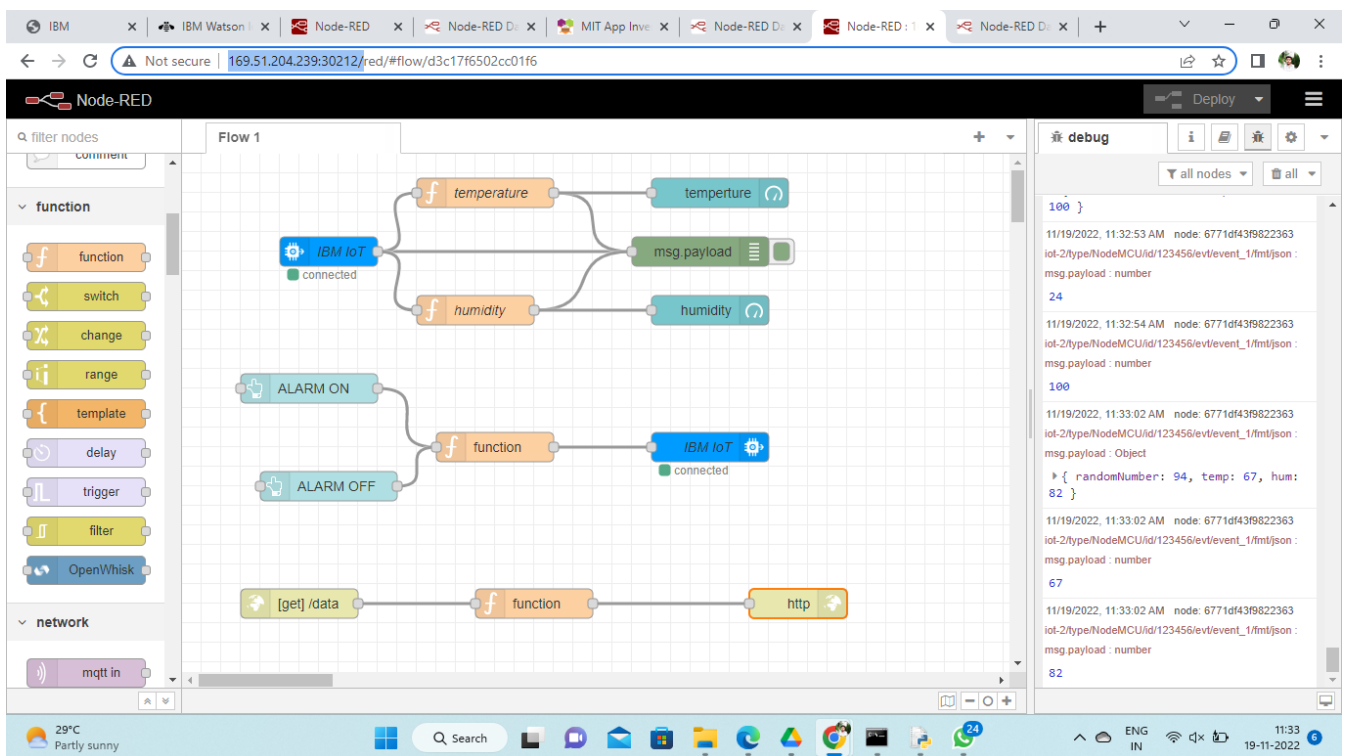


Develop The Web Application Using Node-RED

Date	17 November 2022
Team Id	PNT2022TMID28572
Title	Hazardous Area Monitoring for Industrial Plant using IoT

Node red flow



Function blocks

Node-RED interface showing the 'Edit ibmiot in node' dialog box. The dialog is for configuring an IBM IoT node. The 'Properties' section includes fields for Authentication (API Key), API Key (2ab3f293eae341ef), Input Type (Device Event), Device Type (NodeMCU), Device Id (123456), Event (All or +), Format (All or json), QoS (0), and Name (IBM IoT). The 'Enabled' checkbox is checked. The background shows a flow diagram with nodes like 'function', 'switch', 'change', 'range', 'template', 'delay', 'trigger', 'filter', 'OpenWhisk', 'mqtt in', and 'function'.

Node-RED interface showing the 'Edit ibmiot out node' dialog box. The dialog is for configuring an IBM IoT node. The 'Properties' section includes fields for Authentication (API Key), API Key (2ab3f293eae341ef), Output Type (Device Event), Device Type (NodeMCU), Device Id (123456), Event Type (hazardous), Format (string), Data (data), and QoS (0). The 'Enabled' checkbox is checked. The background shows a flow diagram with nodes like 'function', 'switch', 'change', 'range', 'template', 'delay', 'trigger', 'filter', 'OpenWhisk', 'mqtt in', and 'function'.

IBM Watson IoT Node-RED interface showing a flow for temperature monitoring. The flow includes an IBM IoT node, a function node, and a [get] /data node. The function node is currently editing the "temperature" property.

Edit function node

Properties: Name: temperature

Setup On Start On Message On Stop

```
1 msg.payload=msg.payload.temp;
2 global.set('t',msg.payload)
3 return msg;
```

Debug console shows messages from the IoT node:

```
11/19/2022, 11:33:02 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : number
67
11/19/2022, 11:33:02 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : number
82
11/19/2022, 11:33:12 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : Object
{
  randomNumber: 34, temp: 58, hum: 81
}
11/19/2022, 11:33:12 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : number
58
11/19/2022, 11:33:12 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : number
81
```

IBM Watson IoT Node-RED interface showing a flow for humidity monitoring. The flow includes an IBM IoT node, a function node, and a [get] /data node. The function node is currently editing the "humidity" property.

Edit function node

Properties: Name: humidity

Setup On Start On Message On Stop

```
1 msg.payload=msg.payload.hum;
2 global.set('h',msg.payload)
3 return msg;
```

Debug console shows messages from the IoT node:

```
11/19/2022, 11:33:02 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : number
67
11/19/2022, 11:33:02 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : number
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11/19/2022, 11:33:12 AM node: 6771df43f9822363
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msg.payload : number
58
11/19/2022, 11:33:12 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : number
81
```

Node-RED interface showing a flow with an IBM IoT node connected to a function node, which outputs temperature and humidity data. The 'Edit gauge node' panel is open, showing properties for a gauge node named '[Hazardous area] alarmoff'. The gauge is configured with a label 'temperature', value format '{{value}}', units 'units', and a range from 0 to 100. The 'debug' console shows messages from the IoT node.

Flow 1

function

IBM IoT

connected

temperature

humidity

ALARM ON

ALARM OFF

[get] /data

function

function

switch

change

range

template

delay

trigger

filter

OpenWhisk

network

mqtt in

Edit gauge node

Properties

Group: [Hazardous area] alarmoff

Size: auto

Type: Gauge

Label: temperature

Value format: {{value}}

Units: units

Range: min 0 max 100

Colour gradient: [Green] [Yellow] [Red]

Sectors: 0 optional optional 100

debug

81 }

11/19/2022, 11:33:12 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : number

58

11/19/2022, 11:33:12 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : number

81

11/19/2022, 11:33:22 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : Object

{ randomNumber: 28, temp: 18, hum: 90 }

11/19/2022, 11:33:22 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : number

18

11/19/2022, 11:33:22 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : number

90

Node-RED interface showing a flow with an IBM IoT node connected to a function node, which outputs temperature and humidity data. The 'Edit gauge node' panel is open, showing properties for a gauge node named '[Hazardous area] alarmoff'. The gauge is configured with a label 'humidity', value format '{{value}}', units 'units', and a range from 0 to 100. The 'debug' console shows messages from the IoT node.

Flow 1

function

IBM IoT

connected

temperature

humidity

ALARM ON

ALARM OFF

[get] /data

function

function

switch

change

range

template

delay

trigger

filter

OpenWhisk

network

mqtt in

Edit gauge node

Properties

Group: [Hazardous area] alarmoff

Size: auto

Type: Gauge

Label: humidity

Value format: {{value}}

Units: units

Range: min 0 max 100

Colour gradient: [Green] [Yellow] [Red]

Sectors: 0 optional optional 100

debug

81 }

11/19/2022, 11:33:12 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : number

58

11/19/2022, 11:33:12 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : number

81

11/19/2022, 11:33:22 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : Object

{ randomNumber: 28, temp: 18, hum: 90 }

11/19/2022, 11:33:22 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : number

18

11/19/2022, 11:33:22 AM node: 6771df43f9822363
iot-2/type/NodeMCU/id/123456/evt/event_1/fmt/json :
msg.payload : number

90