

Build A Web Application Using Node-RED Service

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Project Name	SmartFarmer – IoT Enabled Smart Farming Application

STEP 1

The screenshot displays the IBM Watson IoT Platform interface. The browser tabs at the top include IBM Cloud, IBM, IBM Watson IoT Platform, Node-RED, and Node-RED Dashboard. The address bar shows the URL: 62bxw0.internetofthings.ibmcloud.com/dashboard/devices/browse.

The main heading is "Browse Devices". Below it, there are two tabs: "All Devices" (selected) and "Diagnose". A descriptive text states: "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."

A search bar labeled "Search by Device ID" is present. To the right, there is a "Device Simulator" toggle switch and a filter icon.

	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location	Added By	Device Class
>	1234	Disconnected	Smartfarming	Device	Nov 14, 2022 11:35 AM		vaish.vaishnavi79@gmail.com	
>	5678	Disconnected	agrigro	Device	Nov 14, 2022 11:36 AM		vaish.vaishnavi79@gmail.com	

At the bottom of the table, it says "Items per page 50 | 1-2 of 2 items". On the right, it says "1 of 1 page" with navigation arrows.

At the bottom of the page, there is a status bar that says "0 Simulations running".

STEP 2

The screenshot displays the Node-RED web interface in a browser. The browser's address bar shows the URL: `node-red-qmnxe-2022-11-14.eu-gb.mybluemix.net/red/#flow/495fe8eeb5cb7bec`. The interface includes a left sidebar with a 'filter nodes' search bar and two categories of nodes: 'common' (inject, debug, complete, catch, status, link in, link call, link out, comment) and 'function' (function, switch, change, range). The main workspace, titled 'Flow 1', contains a flow starting with an 'IBM IoT' node. This node branches into three function nodes labeled 'Humidity', 'Temperature', and 'soil moisture'. These function nodes are connected to a 'msg.payload' output node. Below this, there is a '[get] /sensor' node connected to an 'httpfunction' node. On the right, the 'Edit function node' panel is open, showing the 'Properties' tab with the name 'Humidity'. The 'On Message' tab is selected, displaying the following JavaScript code:

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

The bottom of the image shows a Windows taskbar with various application icons and a system tray indicating 'Rain coming' and the time '9:46 PM' on '14-Nov-22'.

STEP 3

node-red-qmnxe-2022-11-14.eu-gb.mybluemix.net/red/#flow/495fe8eeb5cb7bec

Node-RED

Flow 1

common

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

function

- function
- switch
- change
- range

msg payload

Humidity

Temperature

soil moisture

IBM IoT

[get] /sensor

httpfunction

Edit function node

Delete Cancel Done

Properties

Name Temperature

Setup On Start On Message On Stop

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

Enabled

config

all unused

On all flows 4 hidden

ibmiot

- 6cf921041cc3cf3f 0
- 07fe4c5f3929b13a 0
- d80ff67ff8898a28 0
- 2a401caa9e9f05fb 0

> Flow 1

> Flow 2

Windows

Type here to search

Rain coming

ENG IN 9:47 PM 14-Nov-22

STEP 4

node-red-qmnxe-2022-11-14.eu-gb.mybluemix.net/red/#flow/495fe8eeb5cb7bec

Node-RED

Flow 1

common

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

function

- function
- switch
- change
- range

msg payload

Humidity

Temperature

soil moisture

IBM IoT

[get] /sensor

httpfunction

Edit function node

Delete Cancel Done

Properties

Name soil moisture

Setup On Start On Message On Stop

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

Enabled

config

all unused

On all flows 4 hidden

ibmiot

- 6cf921041cc3cf3f 0
- 07fe4c5f3929b13a 0
- d80ff67ff8898a28 0
- 2a401caa9e9f05fb 0

> Flow 1

> Flow 2

Windows

Type here to search

Rain coming

ENG IN 9:47 PM 14-Nov-22

STEP 5

node-red-qmnxe-2022-11-14.eu-gb.mybluemix.net/red/#flow/495fe8eeb5cb7bec

Node-RED

Flow 1

common

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

function

- function
- switch
- change
- range

msg payload

Humidity

Temperature

soil moisture

Humidity

Temperature

soil moisture

IBM IoT

[get] /sensor

httpfunction

Edit gauge node

Delete Cancel Done

Properties

- Group: [Temperature] Smartfarming
- Size: auto
- Type: Gauge
- Label: Humidity
- Value format: {{value}}
- Units: gal
- Range: min 0 max 100
- Colour gradient: [Green, Yellow, Red]
- Sectors: 0 ... optional ... optional ... 100
- Class: Optional CSS class name(s) for widget
- Name: Humidity

Enabled

config

all unused

On all flows 4 hidden

ibmiot

- 6cf921041cc3cf3f 0
- 07fe4c5f3929b13a 0
- d80ff67ff8898a28 0
- 2a401caa9e9f05fb 0

Flow 1

Flow 2

Type here to search

Rain coming

ENG IN 9:47 PM 14-Nov-22

STEP 6

node-red-qmnxe-2022-11-14.eu-gb.mybluemix.net/red/#flow/495fe8eeb5cb7bec

Node-RED

Flow 1

common

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

function

- function
- switch
- change
- range

msg payload

Humidity

Temperature

soil moisture

IBM IoT

[get] /sensor

httpfunction

Edit gauge node

Delete Cancel Done

Properties

- Group: [Temperature] Smartfarming
- Size: auto
- Type: Gauge
- Label: soil moisture
- Value format: {{value}}
- Units: units
- Range: min 0 max 90
- Colour gradient: [Green, Yellow, Red]
- Sectors: 0 ... optional ... optional ... 90
- Class: Optional CSS class name(s) for widget
- Name: soil moisture

Enabled

config

all unused

On all flows 4 hidden

ibmiot

- 6cf921041cc3cf3f 0
- 07fe4c5f3929b13a 0
- d80ff67ff8898a28 0
- 2a401caa9e9f05fb 0

Flow 1

Flow 2

Type here to search

Rain coming

ENG IN 9:47 PM 14-Nov-22

STEP 7

node-red-qmnxe-2022-11-14.eu-gb.mybluemix.net/red/#flow/495fe8eeb5cb7bec

Node-RED

Flow 1

filter nodes

common

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

function

- function
- switch
- change
- range

msg payload

Humidity

Temperature

soil moisture

IBM IoT

[get] /sensor

httpfunction

Edit gauge node

Delete Cancel Done

Properties

- Group: [Temperature] Smartfarming
- Size: auto
- Type: Gauge
- Label: Temperature
- Value format: {{value}}
- Units: C
- Range: min 0 max 100
- Colour gradient: [Green, Yellow, Red]
- Sectors: 0 ... optional ... optional ... 100
- Class: Optional CSS class name(s) for widget
- Name: Temperature

Enabled

config

all unused

On all flows 4 hidden

ibmiot

- 6cf921041cc3cf3f 0
- 07fe4c5f3929b13a 0
- d80ff67ff8898a28 0
- 2a401caa9e9f05fb 0

Flow 1

Flow 2

Type here to search

Rain coming

ENG IN 9:47 PM 14-Nov-22

STEP 8

node-red-qmnxe-2022-11-14.eu-gb.mybluemix.net/red/#flow/495fe8eeb5cb7bec

Node-RED

Flow 1

common

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

function

- function
- switch
- change
- range

msg payload

Humidity

Temperature

soil moisture

IBM IoT

[get] /sensor

httpfunction

Edit http in node

Delete Cancel Done

Properties

Method GET

URL /sensor

Name Name

Enabled

config

all unused

On all flows 4 hidden

ibmiot

6cf921041cc3cf3f	0
07fe4c5f3929b13a	0
d80ff67ff8898a28	0
2a401caa9e9f05fb	0

Flow 1

Flow 2

Type here to search

Rain coming

ENG IN 9:47 PM 14-Nov-22

STEP 9

The screenshot shows the Node-RED web interface in a browser. The browser's address bar displays the URL: `node-red-qmnxe-2022-11-14.eu-gb.mybluemix.net/red/#flow/495fe8eeb5cb7bec`. The interface includes a left sidebar with node categories (common, function), a central workspace with a flow diagram, and a right sidebar with a configuration panel.

The flow diagram in the workspace shows an `IBM IoT` node connected to three function nodes labeled `Humidity`, `Temperature`, and `soil moisture`. These function nodes are connected to a `msg.payload` node. Below this, a `[get] /sensor` node is connected to a function node labeled `httpfunction`.

The `Edit function node` dialog is open, showing the configuration for the `httpfunction` node. The `Properties` section shows the node name as `httpfunction`. The `Setup` tab is selected, displaying the following code:

```
1 msg.payload={"Temperature":global.get('t'),"Humidity":global.get('h')}
2 return msg;
```

The right sidebar shows a configuration panel with a table of nodes. The table has columns for node ID and a value. The nodes listed are:

Node ID	Value
6cf921041cc3cf3f	0
07fe4c5f3929b13a	0
d80ff67ff8898a28	0
2a401caa9e9f05fb	0

The bottom of the screen shows the Windows taskbar with the search bar and various application icons.

STEP 10

IBM Cloud x IBM x IBM Watson IoT Platf x Node-RED : node-red x Node-RED Dashboard x IBM-EPBL/IBM-Project x

node-red-qmnxe-2022-11-14.eu-gb.mybluemix.net/red/#flow/495fe8eeb5cb7bec

Node-RED

Flow 1

filter nodes

common

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

function

- function
- switch
- change
- range

msg payload

Humidity

Temperature

soil moisture

Humidity

Temperature

soil moisture

IBM IoT

[get] /sensor

httpfunction

http

config

all unused

On all flows 4 hidden

ibmiot

6cf921041cc3cf3f	0
07fe4c5f3929b13a	0
d80ff67ff8898a28	0
2a401caa9e9f05fb	0

> Flow 1

> Flow 2

Type here to search

Rain coming

ENG IN 9:48 PM 14-Nov-22

STEP 11: Thus a web application is built using Node RED

