

Develop The Web Application Using Node-RED

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Project Name	Smart Waste Management for Metropolitan Cities

Developing web application using Node Red.

The web UI displays the bin's weight, level and location. A dialog box is shown when the bin is full.

In Node Red platform

The screenshot displays the Node-RED web interface in a browser. The main workspace shows a flow named 'Flow 2' with the following components:

- Input:** An 'IBM IoT' node (green) is connected to two 'if' nodes (orange).
- Flow 1 (Top):** The top 'if' node is labeled 'bin level'. It branches into two paths:
 - Path 1: A 'distance' node (blue) connected to a 'level of bin' gauge (blue).
 - Path 2: A 'distance' node (blue) connected to a 'level of chart' gauge (blue).
- Flow 2 (Bottom):** The bottom 'if' node is labeled 'bin weight'. It branches into two paths:
 - Path 1: A 'weight' node (blue) connected to a 'weight of bin' gauge (blue).
 - Path 2: A 'weight' node (blue) connected to a 'weight of waste' gauge (blue).
- Common Node:** Both 'if' nodes are connected to a 'msg payload' node (green).

The right sidebar shows the 'debug' console with a list of messages. The messages are JSON objects containing 'weight' and 'level' values, such as:

```
{ weight: 81, level: 30 }
```

The bottom of the image shows the Windows taskbar with the search bar and system clock indicating 2:24 PM on 11/19/2022.

The screenshot shows the IBM Watson IoT Platform interface. The top navigation bar includes tabs for Browse, Action, Device Types, and Interfaces. A search bar is present with the text "Search by Device ID". The main content area displays details for a specific device (ID: 123456) which is in a "Connected" state. Below the device status, there are tabs for Identity, Device Information, Recent Events, State, and Logs. The "Recent Events" tab is active, showing a table of events:

Event	Value	Format	Last Received
IoTSensor	{"weight":0,"level":72}	json	a few seconds ago
IoTSensor	{"weight":76,"level":94}	json	a few seconds ago
IoTSensor	{"weight":58,"level":64}	json	a few seconds ago
IoTSensor	{"weight":37,"level":9}	json	a few seconds ago

A notification at the bottom right of the events table states "1 Simulation running". The bottom of the screen shows a Windows taskbar with the search bar and system tray icons.

Web UI:

The image displays two side-by-side screenshots of a Node-RED dashboard titled "Node-RED Dashboard". The left dashboard, labeled "[smart waste management]", features two main visualizations: a line graph titled "weight of waste" showing data points over time (from 14:40:00 to 14:54:00), and a gauge chart titled "weight" showing a value of 70. The right dashboard shows two visualizations: a gauge chart titled "distance" showing a value of 27, and a line graph titled "distance" showing data points over time (from 14:13:00 to 14:24:00). Both dashboards are running on a Windows operating system, as indicated by the taskbar at the bottom.