

## **Develop a Web Application using Node \_ RED Service**

### **Create the Web Service:**

- Double-click the tab with the flow name, and call it Earthquake Details .
- Click the hamburger menu, and then click Manage palette. ...
- Add an HTTP input node to your flow.
- Double-click the node to edit it. ...
- Add an HTTP response node, and connect it to the previously added HTTP input node.

### **Learning objectives.**

After you complete this tutorial, you will know how to:

- Create a Node-RED Starter application running on IBM Cloud.
- Install and work with nodes available in the Node-RED Library.
- Make external packages or modules available to a function node.
- Work with Dashboard nodes.
- Secure a Web API that was created in a Node-RED Starter application.
- Create a Node-RED starter application
- After the status of your application changes to Running, click Visit App URL. Click Go to your Node-RED flow editor. A new flow called Flow 1 is opened in the Node-RED flow editor. If you secured your Node-RED flow editor, you will first be asked to enter the username and password that you just set up.

### **Develop the Application:**

Our Earthquake Monitoring System application has two main components:

- The web service component
- The dashboard component Create the Web Service
- Double-click the tab with the flow name, and call it Earthquake Details.

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- Click the hamburger menu, and then click Manage palette. Look for node-red-node-openweathermap to install these additional nodes in your palette.
- Add an HTTP input node to your flow.
- Double-click the node to edit it. Set the method to GET and set the URL to /earthquakeinfo-hr.
- Add an HTTP response node, and connect it to the previously added HTTP input node. All other nodes introduced in this sub-section is to be added between the HTTP input node and the HTTP response node.
- Add an HTTP request node and set the URL, Method to GET and the Return to a parsed JSON object. This will allow extracting all earthquakes that occurred within the last hour. Name this node Get Earthquake Info from USGS.
- Add a split node, which will split the earthquake information points into different messages based on the location.
- Add a change node to set the longitude and latitude to the right properties, which will get fed into the openweathermap node. In the Rules section, you will Set msg.details to msg.payload, msg.location.lon to msg.payload.longitude, and msg.location.lat to this node Set Lon & Lat.
- Add another change node that will Set the msg.payload to the output of a JSONata expression that will format the messages correctly. Name the node Add Weather Data. The JSONata expression is as follows.
- Click Deploy for all changes to take effect.
- Creating the Dashboard
- Add a new flow, and name it Dashboard.
- Go to Manage palette, and install the node-red-contrib-web-worldmap, node-red-dashboard, and node-red-node-twitter packages. node-red-contrib-web-worldmap is used to create a map on which points corresponding to locations where earthquakes are taking place in the last 1 hour are plotted. node-red-dashboard is used to display the latest earthquake-related tweets and the frequency of earthquakes per region.
- Go to the Dashboard tab that was added next to the Node information and Debug messages tabs. There are three sub-tabs: Layout, Site and Theme. Each of these sub-tabs is used to change the look and feel of the UI.

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- Under Layout, create a tab by clicking on +tab, which can resemble a page in the UI. Edit it as shown in the following image, and click Update.
- Add a group, which is used to collate similar widgets together, to the tab by clicking on +group. You need to add a total of three groups: one for the Map, one for Latest tweet, and one for Earthquake Frequency. When dashboard nodes are added, they will be added to one of these groups.