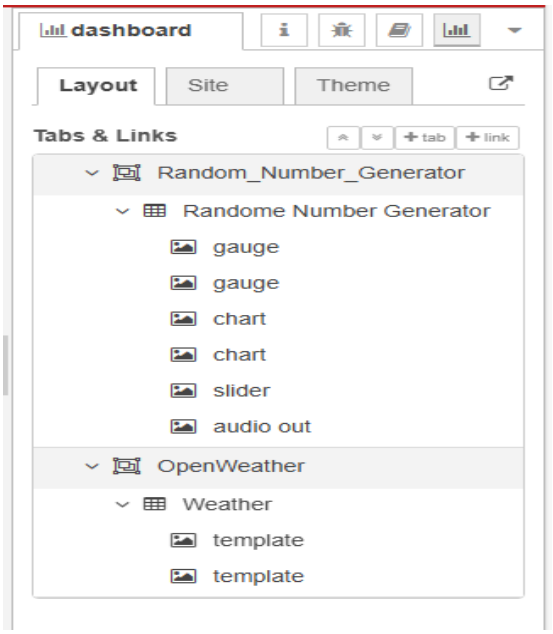
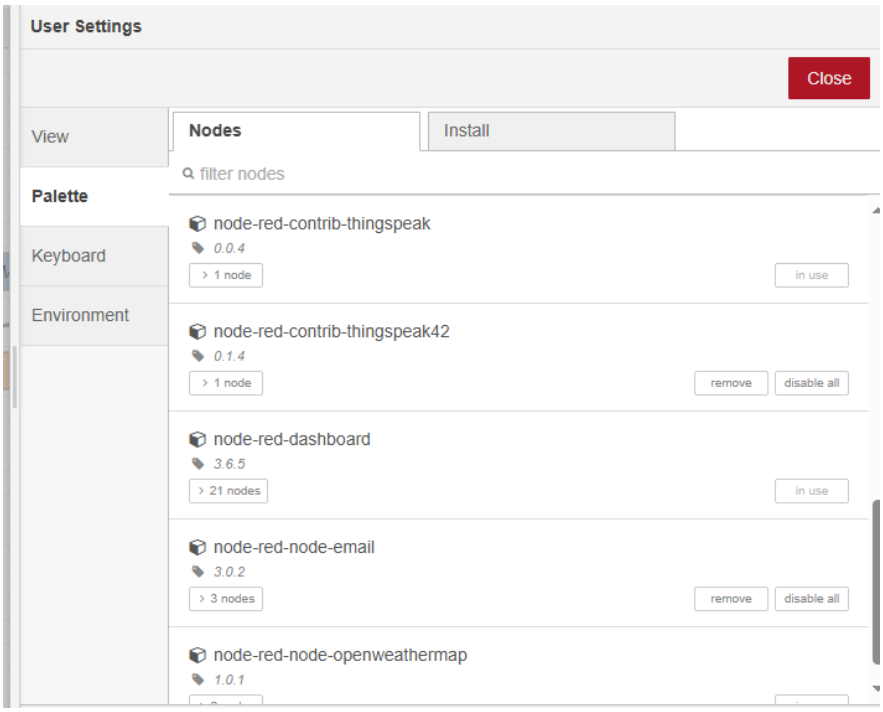
Practical 10

Study and implementation of processing data from different sensors and visualize data on Node-red dashboard.

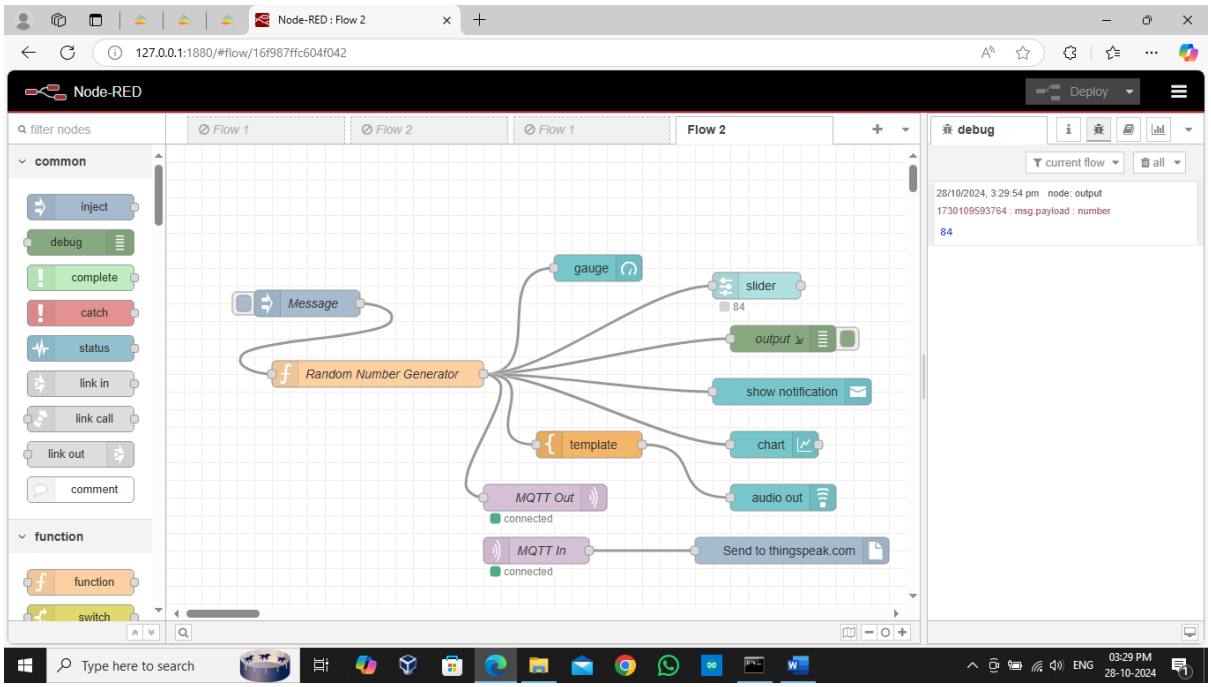
Dashboard layout:

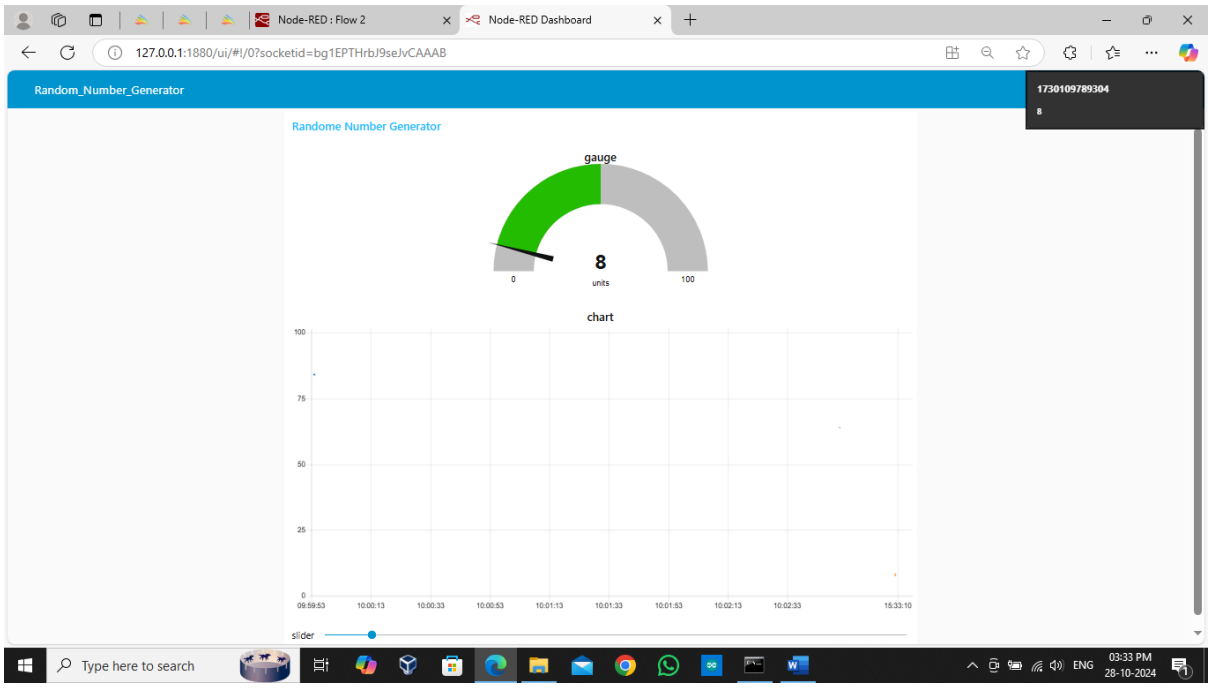


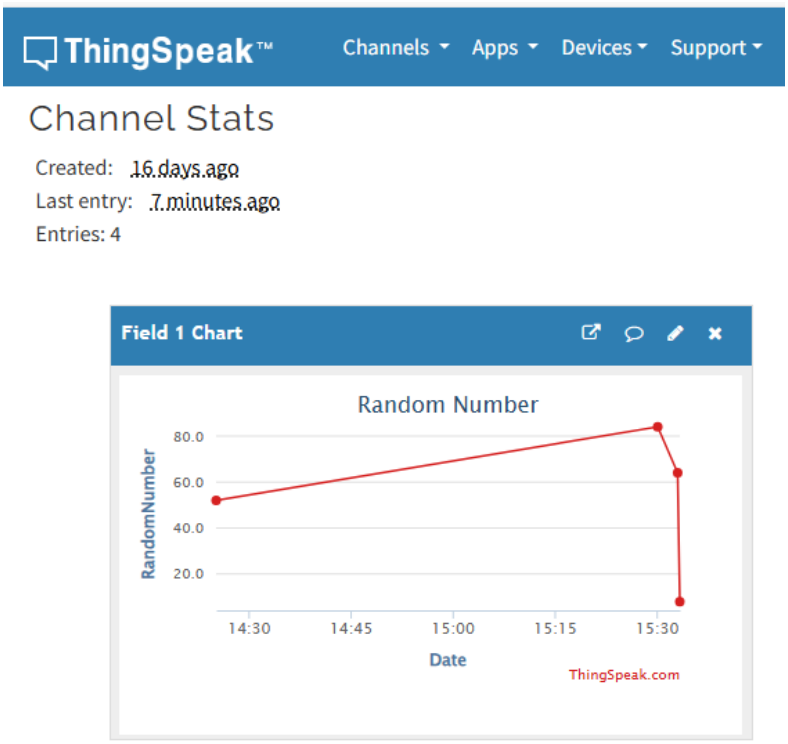
Node-Red Pallet installed module:



Random Number Generator With UI

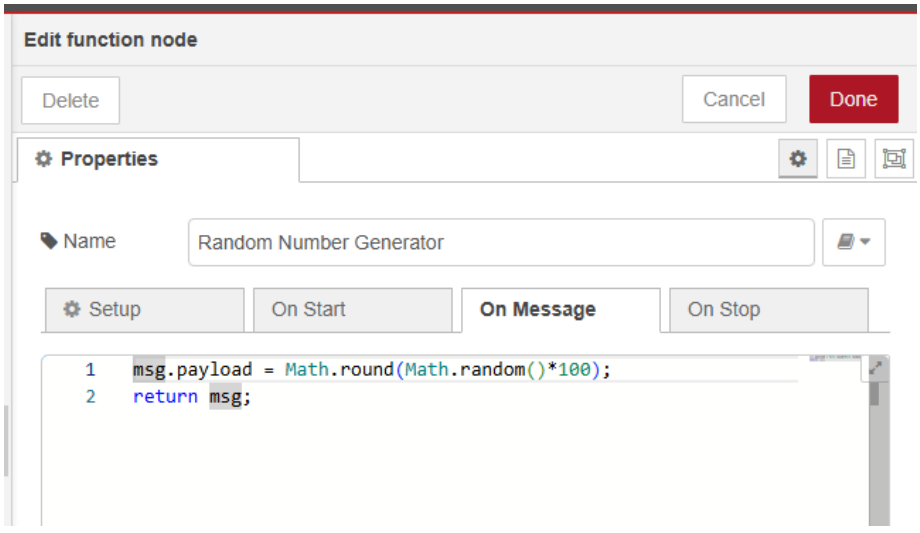






Random Number Generator Code :

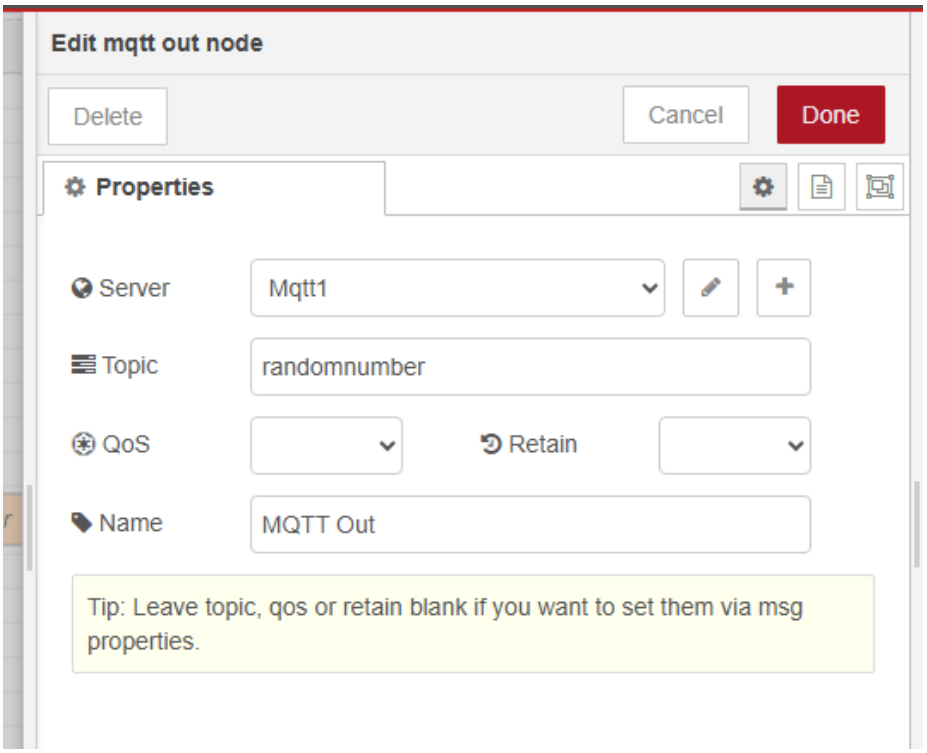
```
msg.payload = Math.round(Math.random()*100);
return msg;
```

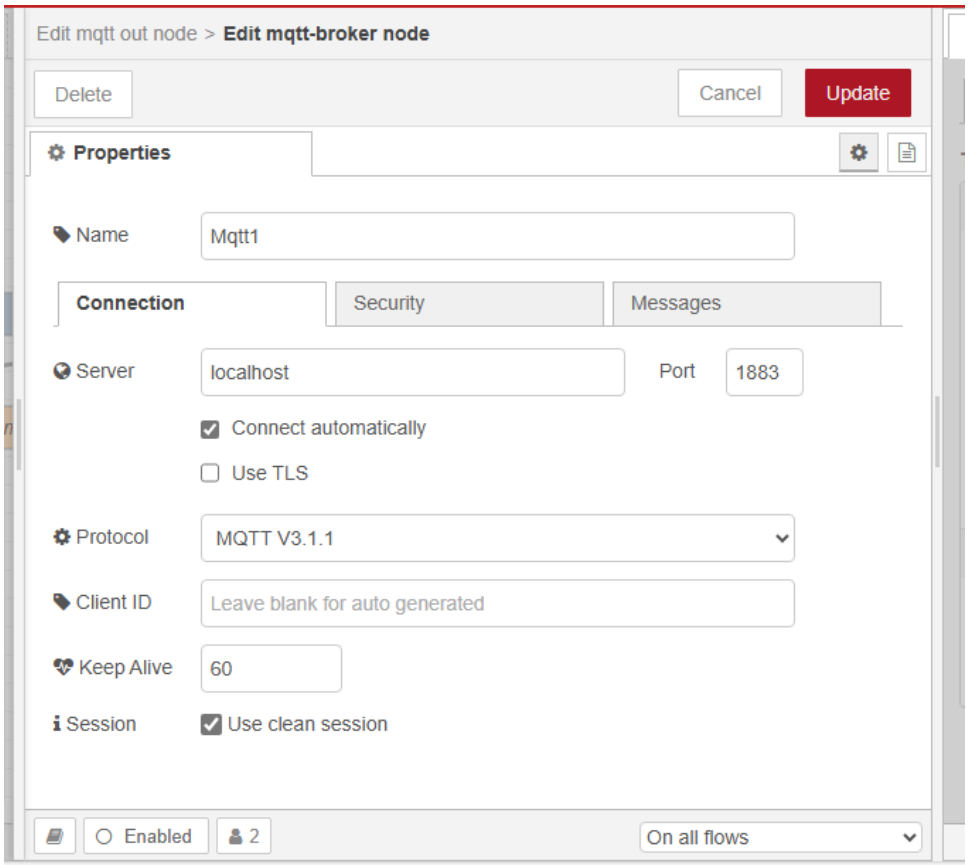


MQTT Configuration:

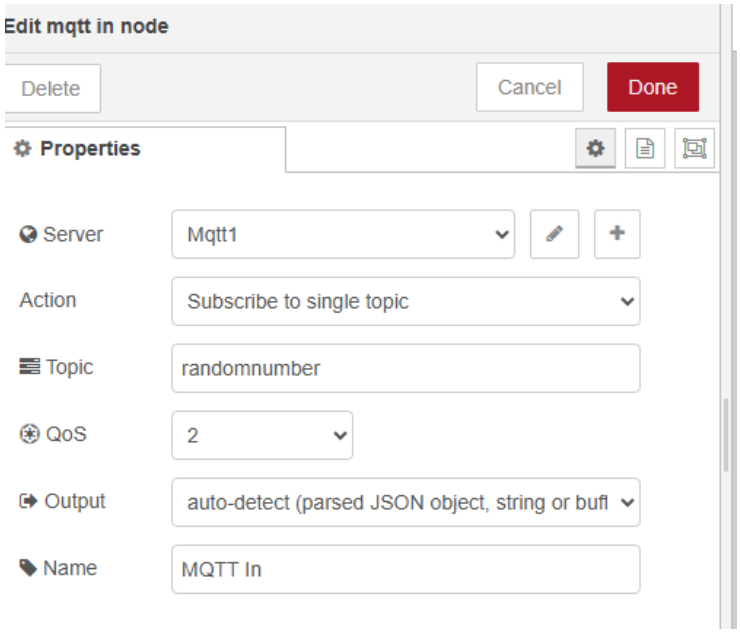
Note : Before use install Mosquitto application

MQTT Out:

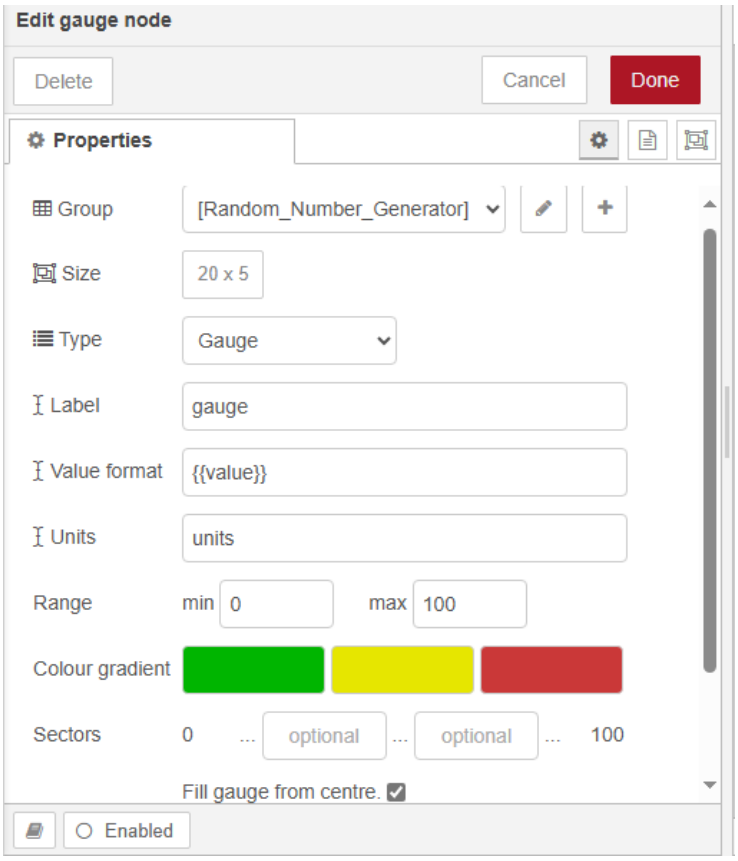




MQTT In:



Gauge Setting :

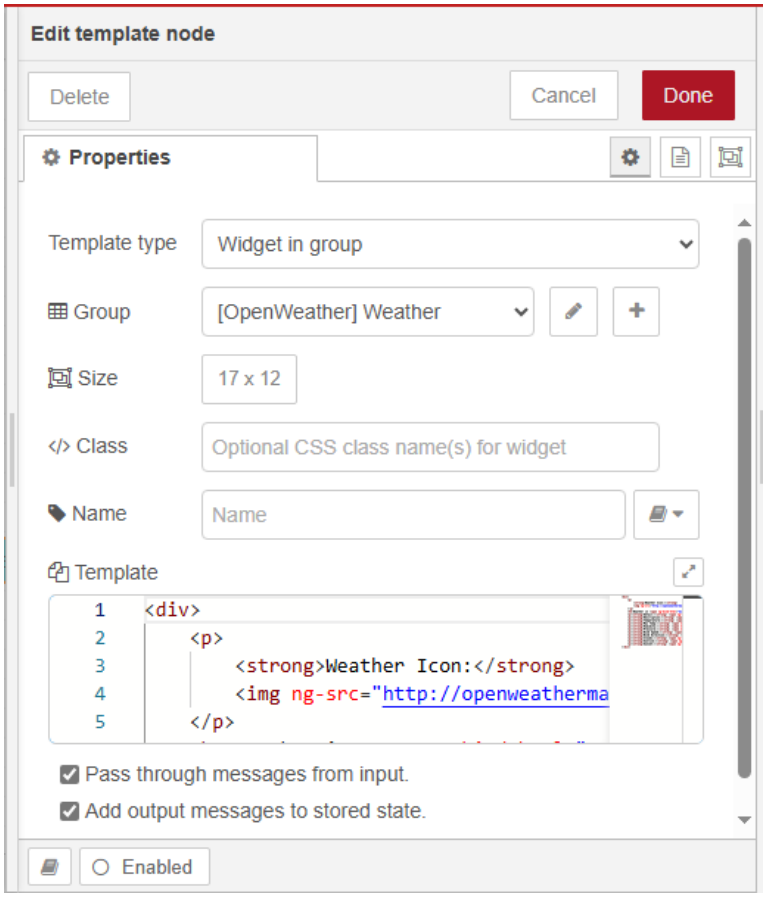


Note: - Other UI components are on their default settings

Using OpenWeatherMap API

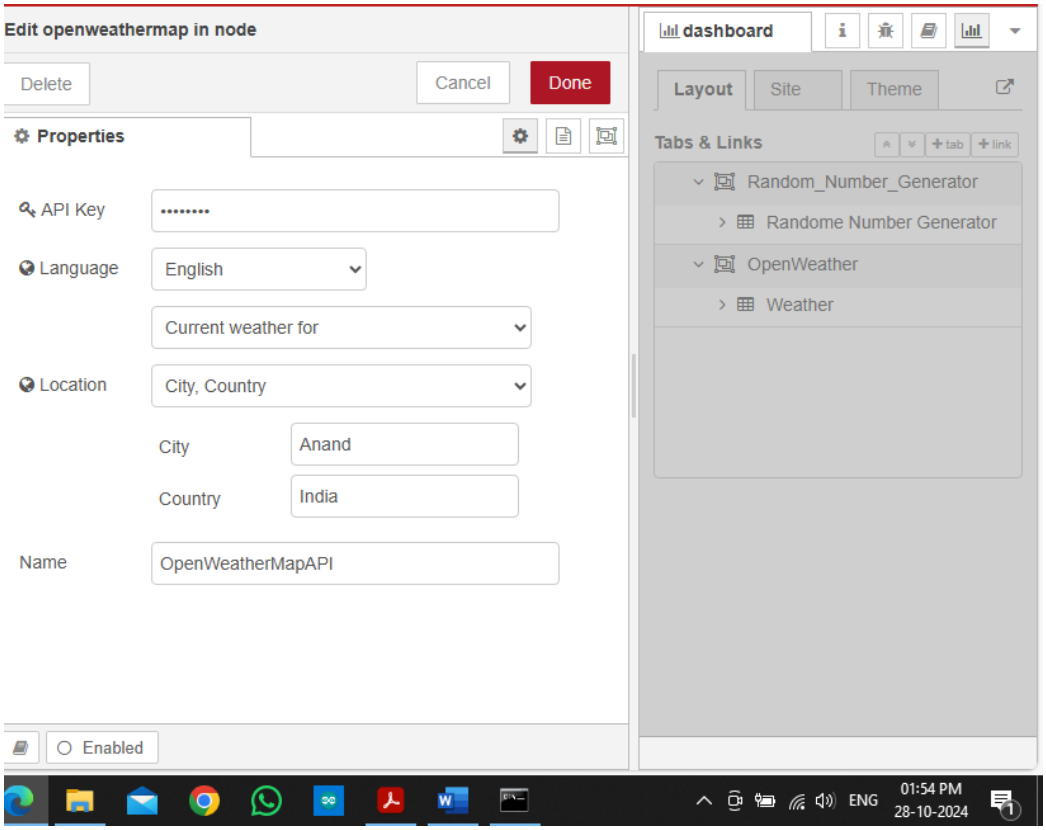
Template Code:

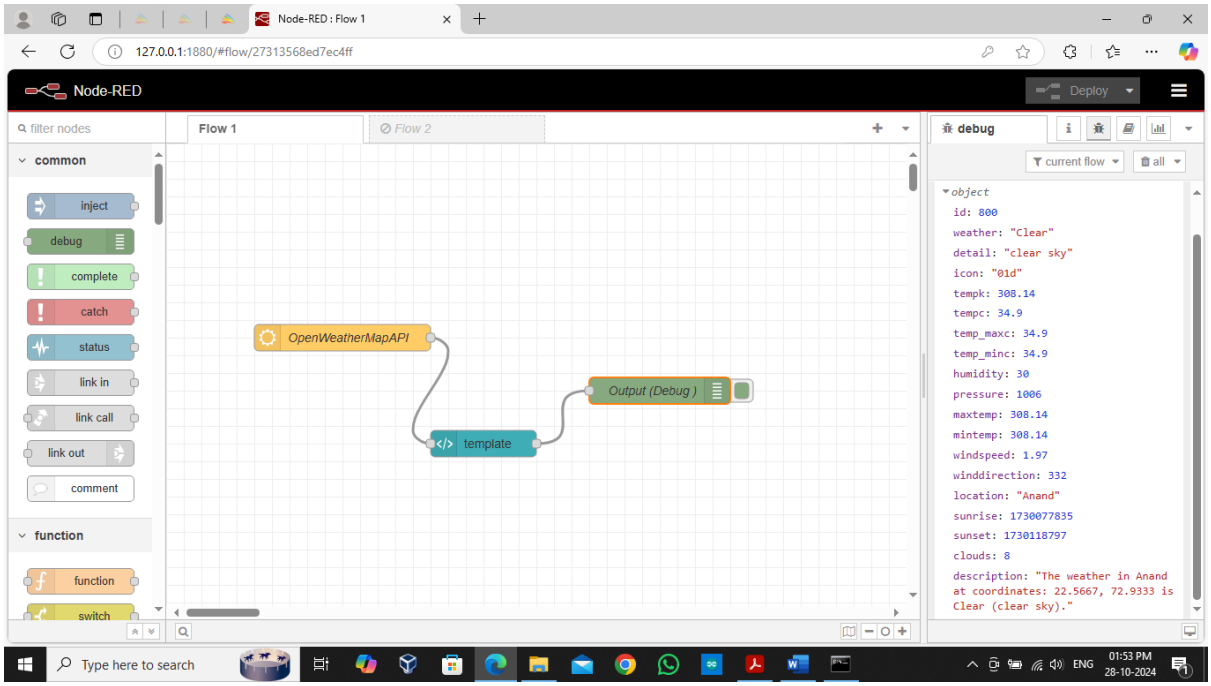
```
<div>
    <p>
        <strong>Weather Icon:</strong>
        <img ng-
src="http://openweathermap.org/img/wn/{{msg.payload.icon}}@2x.png"
alt="Weather Icon">
    </p>
    <h2>Weather in <span ng-bind-html="msg.payload.location"></span></h2>
    <p><strong>Detail:</strong> <span ng-bind-
html="msg.payload.detail"></span></p>
    <p><strong>Description:</strong> <span ng-bind-
html="msg.payload.description"></span></p>
    <p><strong>Temperature:</strong> <span ng-bind-
html="msg.payload.tempc"></span>°C</p>
    <p><strong>Max Temp:</strong> <span ng-bind-
html="msg.payload.temp_maxc"></span>°C, <strong>Min Temp:</strong> <span ng-
bind-html="msg.payload.temp_minc"></span>°C</p>
    <p><strong>Humidity:</strong> <span ng-bind-
html="msg.payload.humidity"></span>%</p>
    <p><strong>Pressure:</strong> <span ng-bind-
html="msg.payload.pressure"></span> hPa</p>
    <p><strong>Wind Speed:</strong> <span ng-bind-
html="msg.payload.windspeed"></span> m/s</p>
    <p><strong>Wind Direction:</strong> <span ng-bind-
html="msg.payload.winddirection"></span>°</p>
    <p><strong>Clouds:</strong> <span ng-bind-
html="msg.payload.clouds"></span>%</p>
    <p><strong>Sunrise:</strong> <span ng-bind-html="(msg.payload.sunrise *
1000) | date:'shortTime'"></span></p>
    <p><strong>Sunset:</strong> <span ng-bind-html="(msg.payload.sunset *
1000) | date:'shortTime'"></span></p>
</div>
```

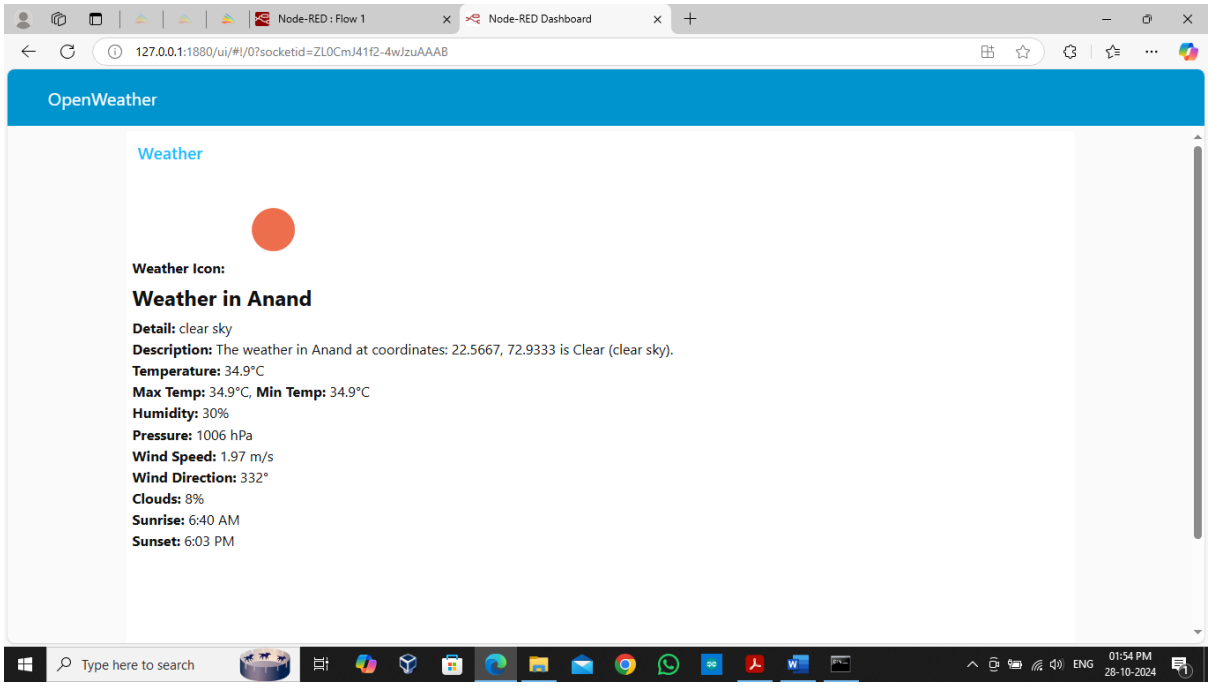

Edit template node
Delete
Cancel
Done
Properties
Template type
Widget in group
Group
[OpenWeather] Weather
Size
17 x 12
Class
Optional CSS class name(s) for widget
Name
Name
Template

Weather Icon:
<img ng-src="http://openweatherma

Pass through messages from input.
Add output messages to stored state.
Enabled


Edit openweathermap in node
Delete
Cancel
Done
Properties
API Key
Language
English
Current weather for
Location
City, Country
City
Anand
Country
India
Name
OpenWeatherMapAPI
Enabled
dashboard
Layout
Site
Theme
Tabs & Links
Random_Number_Generator
Randome Number Generator
OpenWeather
Weather
ENG
01:54 PM
28-10-2024


Node-RED : Flow 1
127.0.0.1:1880/#flow/27313568ed7ec4ff
Node-RED
Deploy
filter nodes
Flow 1
Flow 2
common
inject
debug
complete
catch
status
link in
link call
link out
comment
function
function
switch
OpenWeatherMapAPI
template
Output (Debug)
debug
current flow
all
object
id: 800
weather: "Clear"
detail: "clear sky"
icon: "01d"
tempk: 308.14
tempc: 34.9
temp_maxc: 34.9
temp_minc: 34.9
humidity: 30
pressure: 1006
maxtemp: 308.14
mintemp: 308.14
windspeed: 1.97
winddirection: 332
location: "Anand"
sunrise: 1730077835
sunset: 1730118797
clouds: 8
description: "The weather in Anand at coordinates: 22.5667, 72.9333 is Clear (clear sky)."
Type here to search
ENG
01:53 PM
28-10-2024


Node-RED : Flow 1
Node-RED Dashboard
127.0.0.1:1880/ui/#!/0?socketid=ZL0CmJ41f2-4wJzuAAAB
OpenWeather
Weather
Weather Icon:
Weather in Anand
Detail: clear sky
Description: The weather in Anand at coordinates: 22.5667, 72.9333 is Clear (clear sky).
Temperature: 34.9°C
Max Temp: 34.9°C, Min Temp: 34.9°C
Humidity: 30%
Pressure: 1006 hPa
Wind Speed: 1.97 m/s
Wind Direction: 332°
Clouds: 8%
Sunrise: 6:40 AM
Sunset: 6:03 PM
Type here to search
ENG
01:54 PM
28-10-2024