物聯網實務 HW9

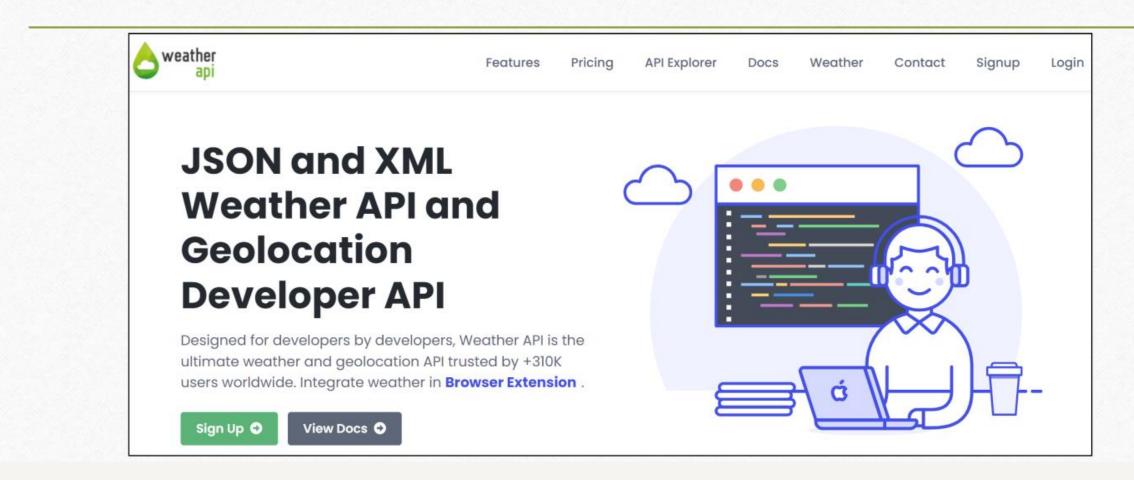
電機碩一 11278008 林佳慧

日期:2023/11/15

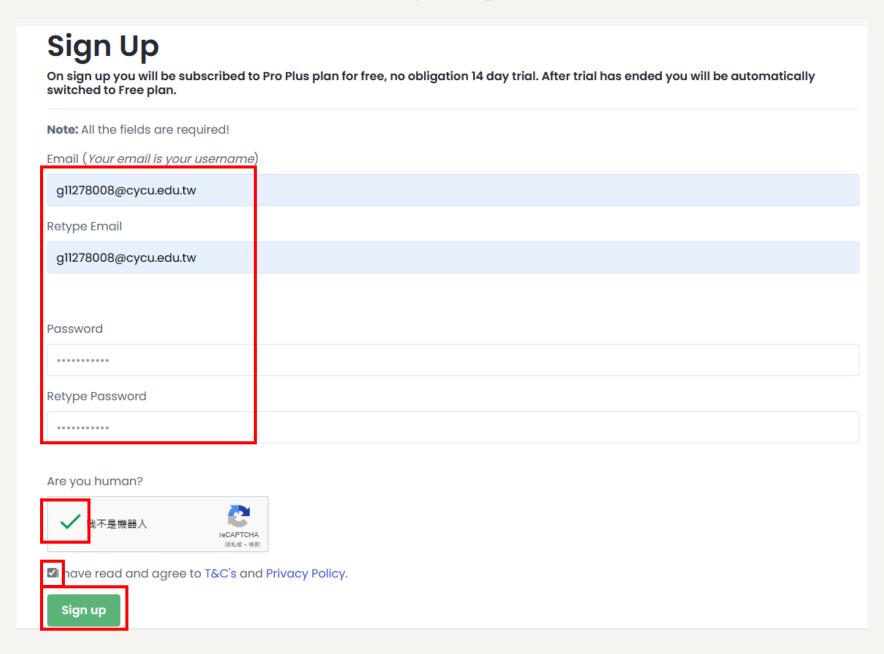
Exercise 9-1

Get the weather information form weather API and show them on the debug window in Node-RED

Weather API



Sign Up



Account verification

Hello,

Thanks for signing up.

You will only need to visit the link once to verify and activate your account.

To complete your account verification, please click the link given below:-

https://www.weatherapi.com/confirm.aspx?code=1bc25164-83fc-419f-af31-b2bc4a654f71

If the above link does not work, please copy and paste link into your web browser.

If you are still having problems signing up then please do get in touch.

Thanks,

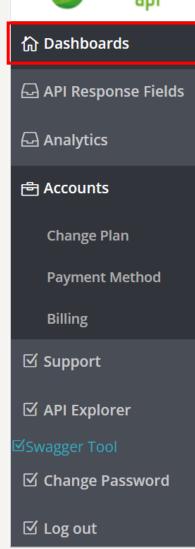
Sana

WeatherAPI.com Support Team

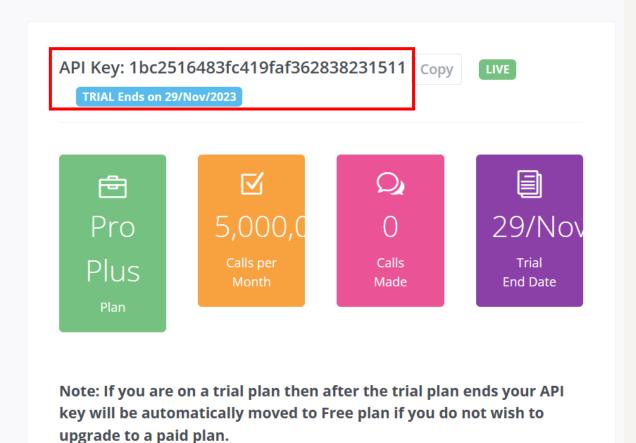
w: https://www.weatherapi.com/

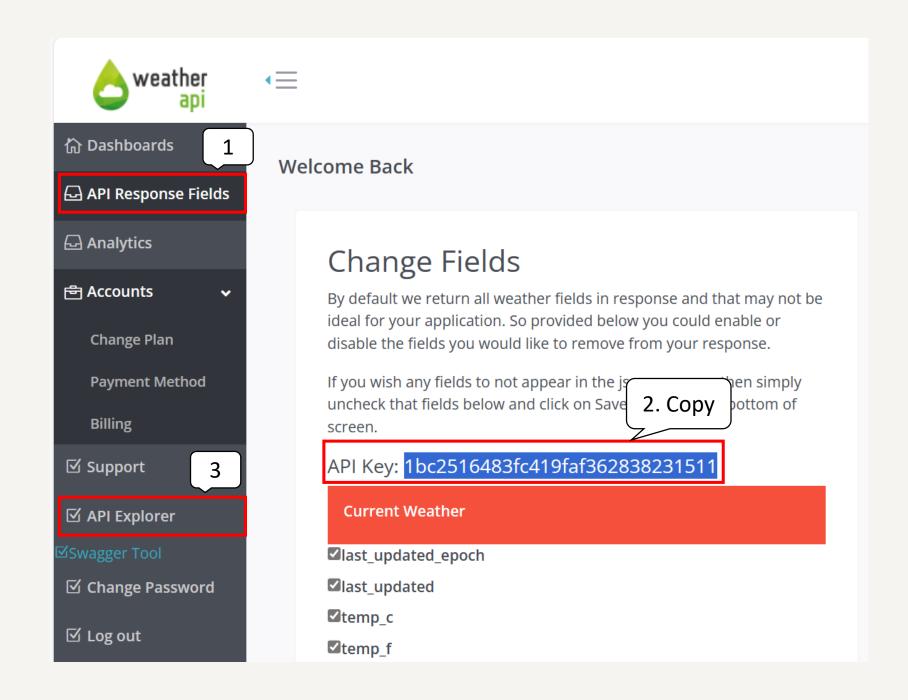






Welcome Back





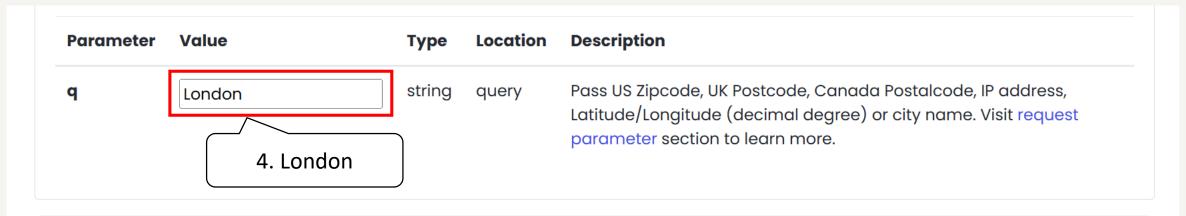
Interactive API Explorer

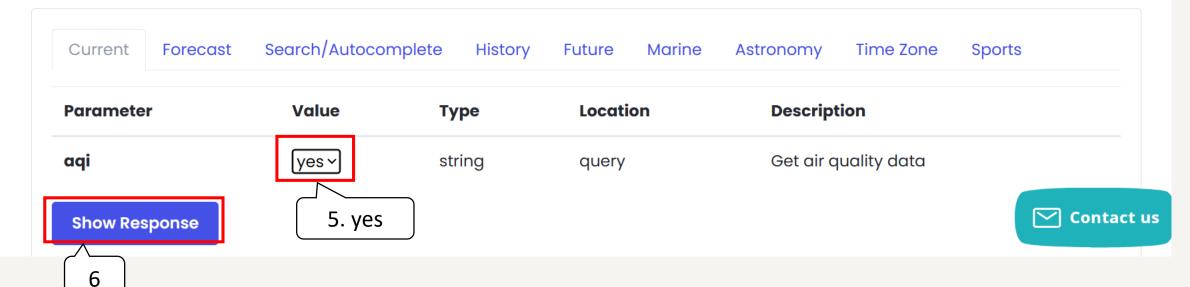
WeatherAPI.com interactive API explorer or IO Docs allows you to test our APIs and methods. It returns response headers, response code and response body.

For complete documentation please visit our Weather API Documentation section.

You can also now use our Swagger tool to learn as to how to form weather Request. Visit Swagger Tool







Call

Copy

https://api.weatherapi.com/v1/current.json?key=1bc2516483fc419faf362838231511&q=London&aqi=yes

Response Code

200

Response Headers

```
{
    "Transfer-Encoding": "chunked",
    "Connection": "keep-alive",
    "Vary": "Accept-Encoding",
    "CDN-PullZone": "93447",
    "CDN-Uid": "8fa3a04a-75d9-4707-8056-b7b33c8ac7fe",
    "CDN-RequestCountryCode": "GB",
    "Age": "0",
    "x-weatherapi-qpm-left": "5000000",
    "CDN-ProxyVer": "1.04",
    "CDN-RequestPullSuccess": "True",
    "CDN-RequestPullCode": "200",
    "CDN-CachedAt": "11/15/2023 06:38:15",
    "CDN-EdgeStorageId": "752",
```

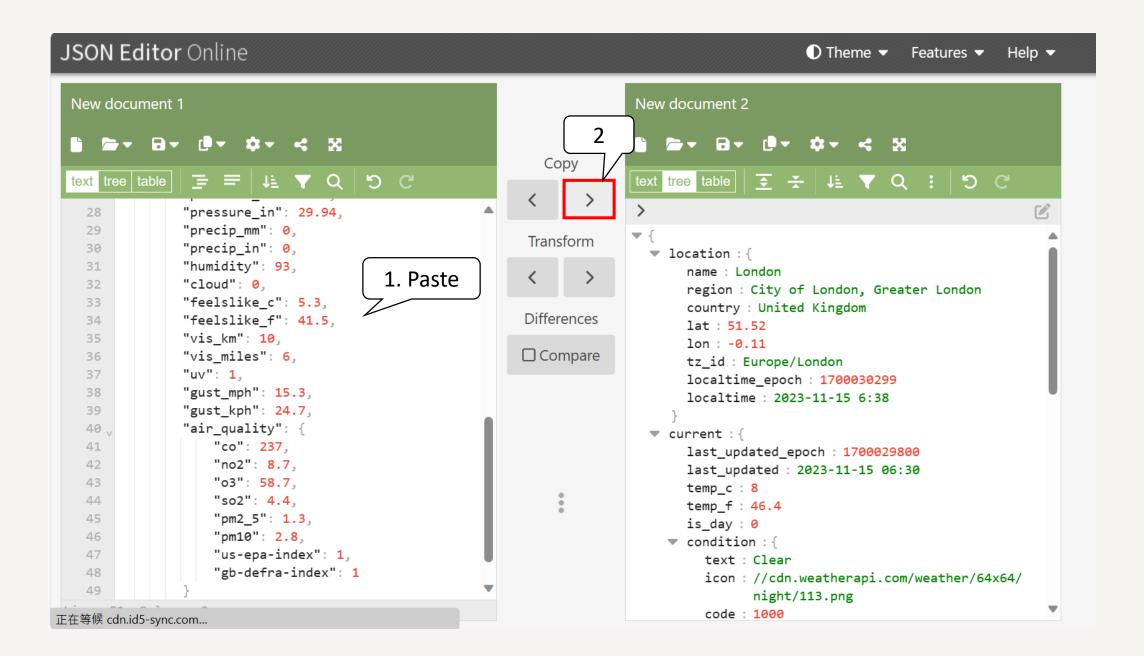


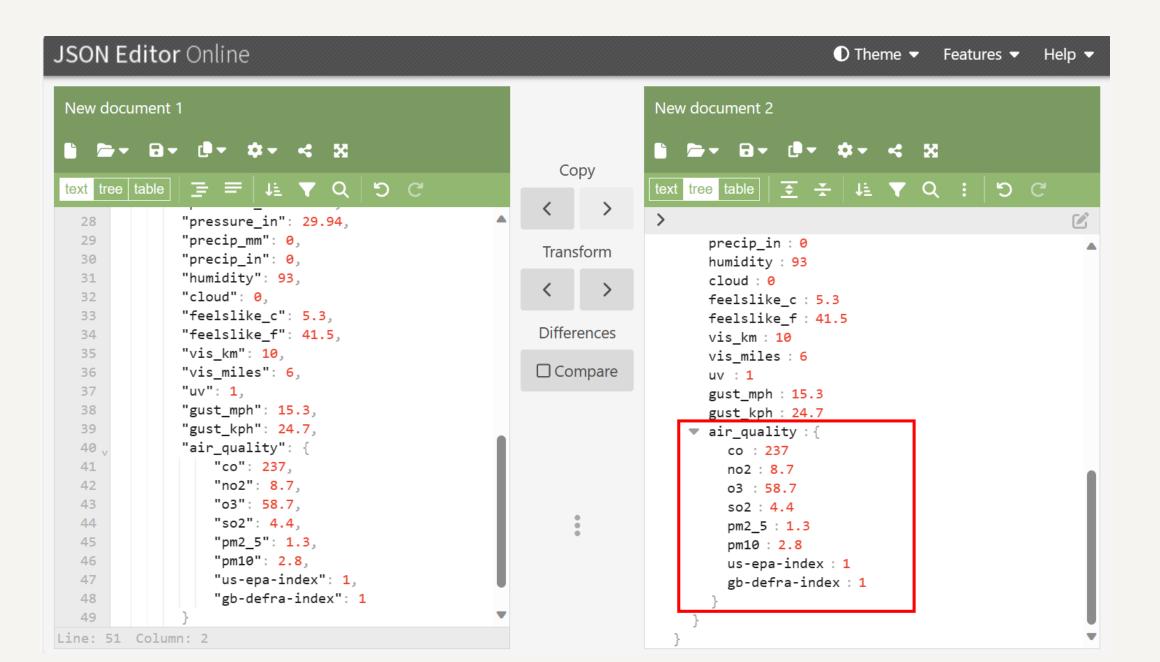
 \bigcirc

```
"location": {
 2
             "name": "London",
 3
 4
5
6
7
            "region": "City of London, Greater London",
            "country": "United Kingdom",
            "lat": 51.52,
            "lon": -0.11,
 8
            "tz id": "Europe/London",
            "localtime_epoch": 1700030299,
"localtime": "2023-11-15 6:38"
 9
10
11
        },
        "current": {
12
            "last_updated_epoch": 1700029800,
"last_updated": "2023-11-15 06:30",
13
14
            "temp_c": 8,
15
            "temp f": 46.4,
16
17
            "is_day": 0,
            "condition": {
18
                 "text": "Clear",
19
                 "icon": "//cdn.weatherapi.com/weather/64x64/night/113.png",
20
                 "code": 1000
21
22
            },
"wind_mph": 11.9,
23
24
            "wind kph": 19.1,
            "wind_degree": 250,
25
            "wind dir": "WSW",
26
27
            "pressure_mb": 1014,
            "pressure in": 29.94,
28
29
            "precip_mm": 0,
30
            "precip_in": 0,
31
            "humidity": 93,
            "cloud": 0,
32
            "feelslike_c": 5.3,
33
34
            "feelslike f": 41.5,
35
            "vis km": \overline{10},
            "vis miles": 6,
36
            "uv": 1,
37
            "gust_mph": 15.3,
38
            "gust_kph": 24.7,
39
            "air_quality": {
40
                 "co": 237,
41
                 "no2": 8.7,
42
43
                 "o3": 58.7,
44
                 "so2": 4.4,
45
                 "pm2 5": 1.3,
```

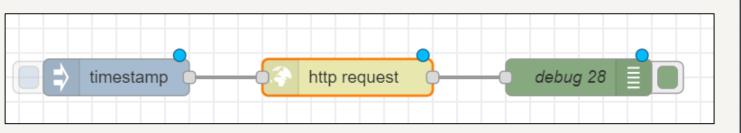
1. Paste

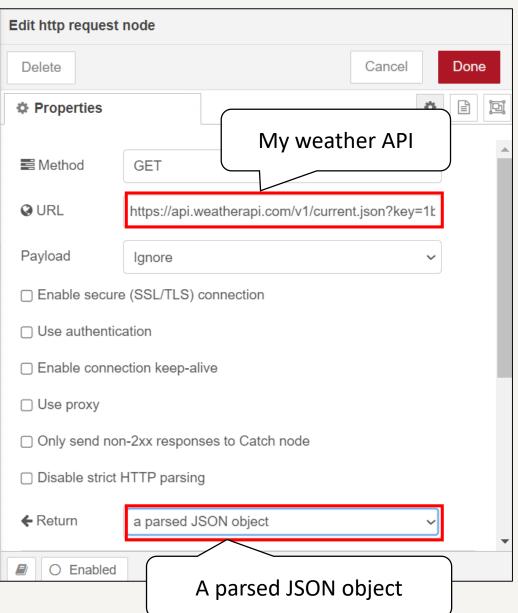
2. Select All & Copy

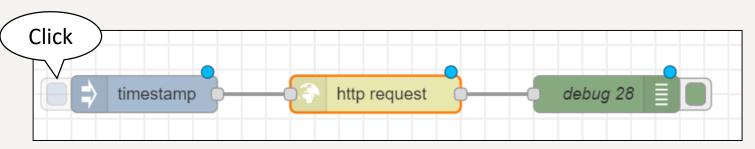




http request









2023/11/15 下午2:46:52 node: debug 28

msg.payload : Object

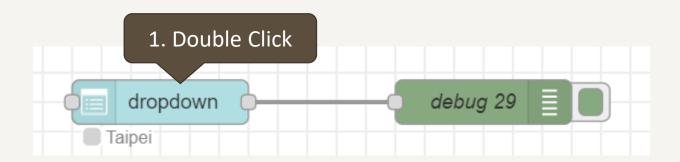
▶{ location: object, current: object }

Expand

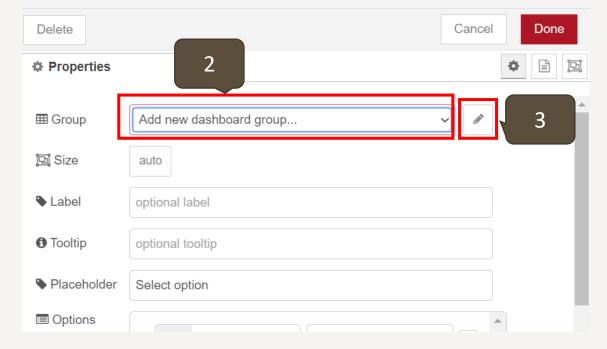
```
msg.payload: Object
▼object
 ▼location: object
    name: "London"
    region: "City of London, Greater
    London"
    country: "United Kingdom"
    lat: 51.52
    lon: -0.11
    tz_id: "Europe/London"
    localtime epoch: 1700030768
    localtime: "2023-11-15 6:46"
 ▼current: object
    last updated epoch: 1700030700
    last updated: "2023-11-15 06:45"
    temp c: 8
    temp_f: 46.4
    is day: 0
   ▶ condition: object
    wind_mph: 10.5
    wind kph: 16.9
```

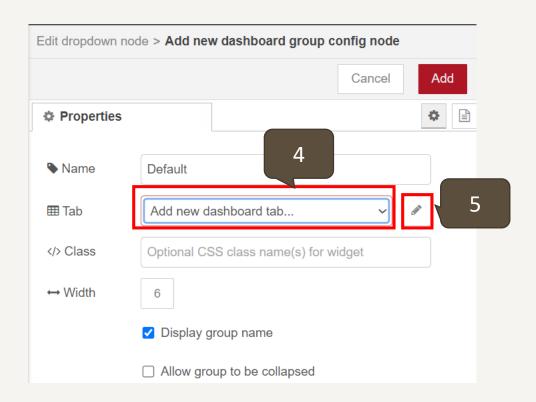
Exercise 9-2

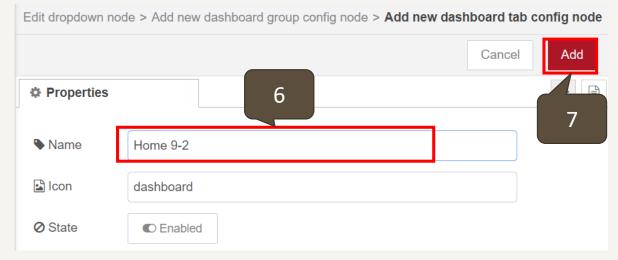
Build a weather station

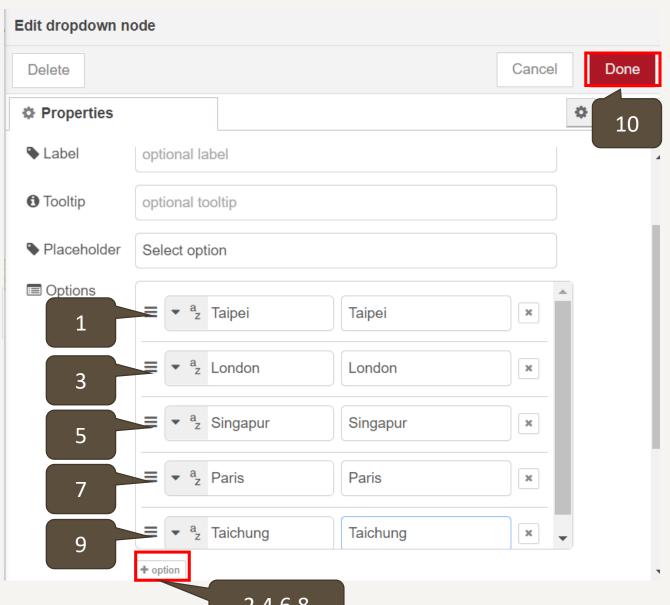


Edit dropdown node

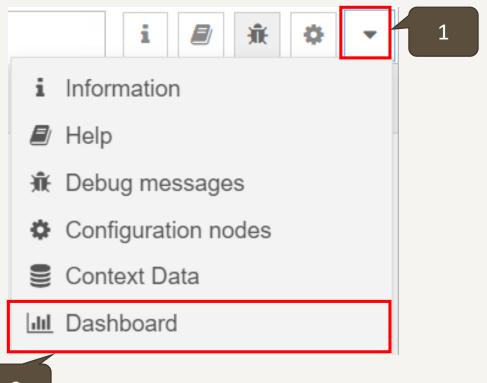


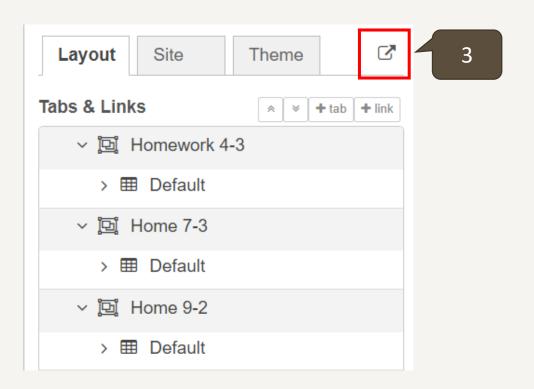


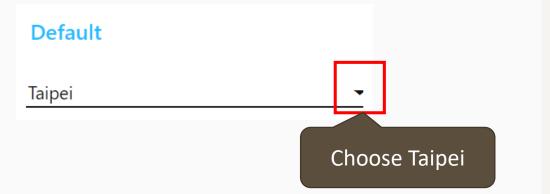




Go to Dashboard



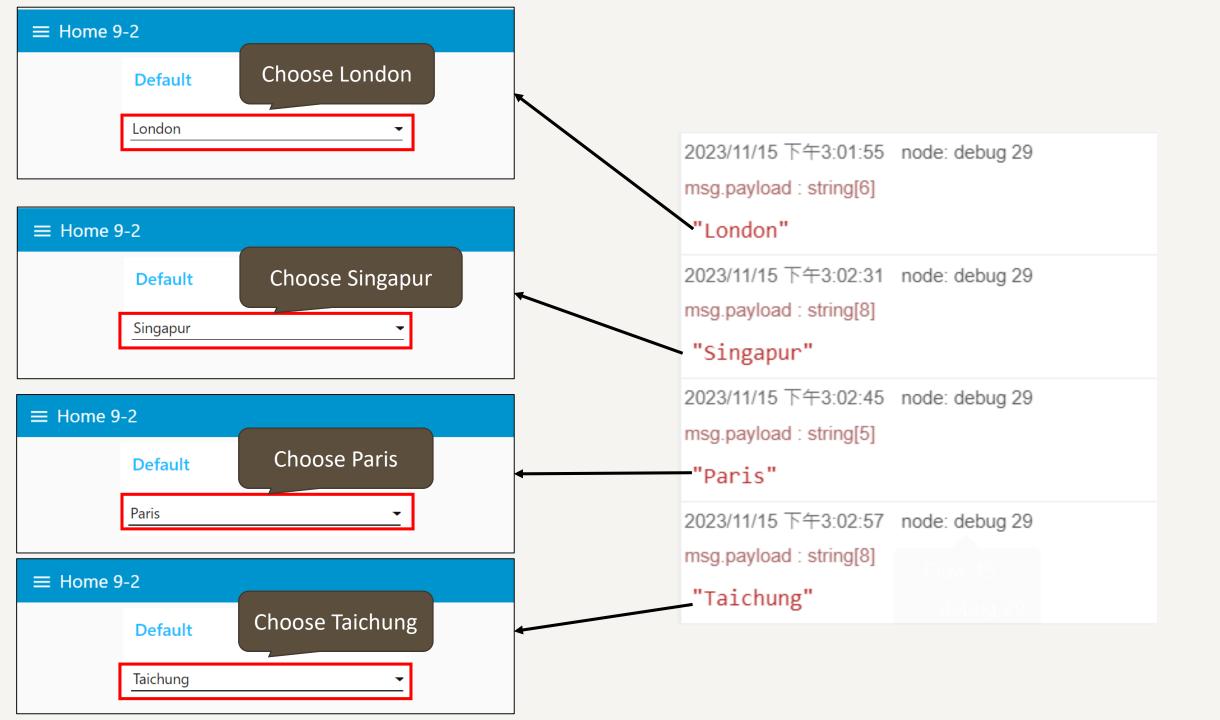




2023/11/15 下午3:00:48 node: debug 29

msg.payload : string[6]

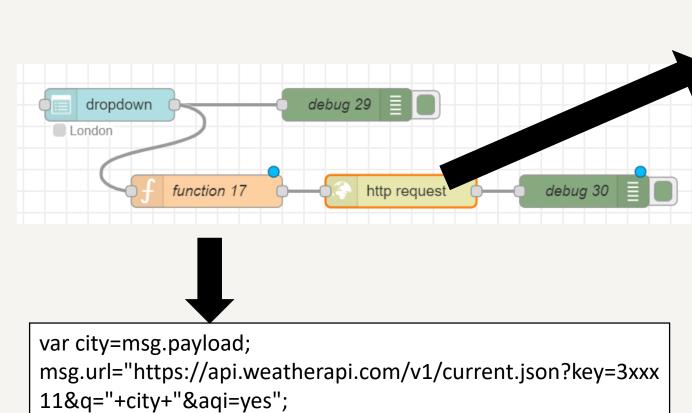
"Taipei"

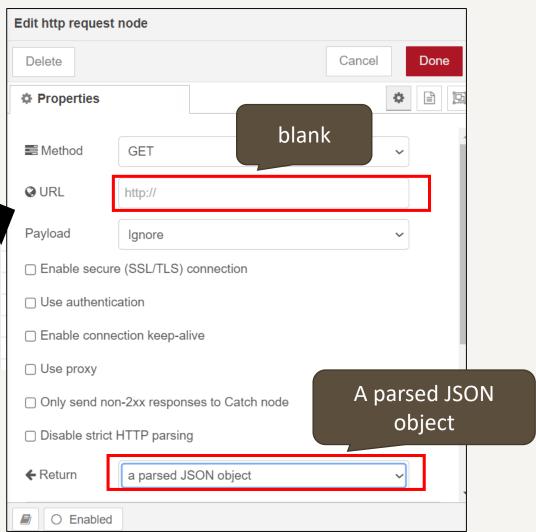




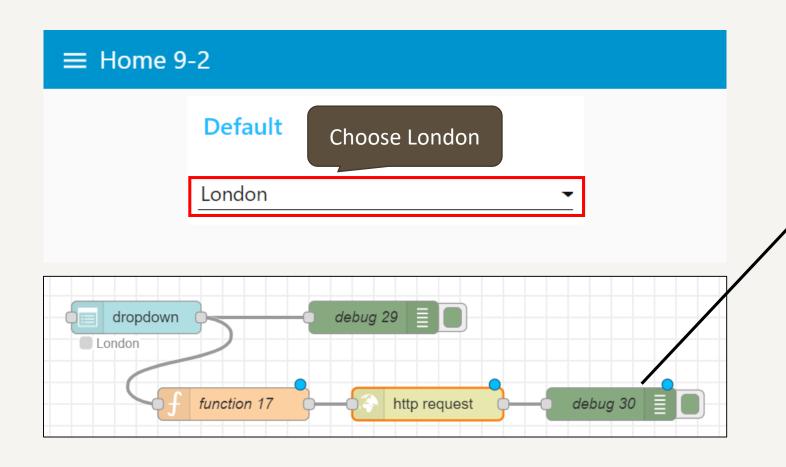
Add nodes

return msg;



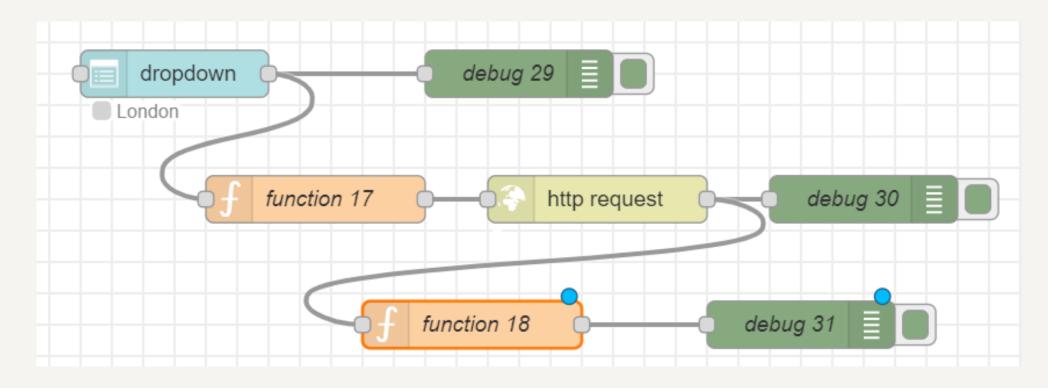


Test with choosing London



```
2023/11/15 下午3:13:06 node: debug 29
msg.payload : string[6]
"London"
2023/11/15 下午3:13:07 node: debug 30
msg.payload : Object
 ▼object
 ▼location: object
     name: "London"
     region: "City of London, Greater
     London"
     country: "United Kingdom"
     lat: 51.52
     lon: -0.11
     tz_id: "Europe/London"
     localtime_epoch: 1700032344
     localtime: "2023-11-15 7:12"
 ▶ current: object
```

Add a function node and a debug node



var obj = msg.payload; var current = obj.current; msg.payload = current; return msg;

Choose Taipei

```
■ Home 9-2

Default Choose Taichung

Taichung

Expand
```

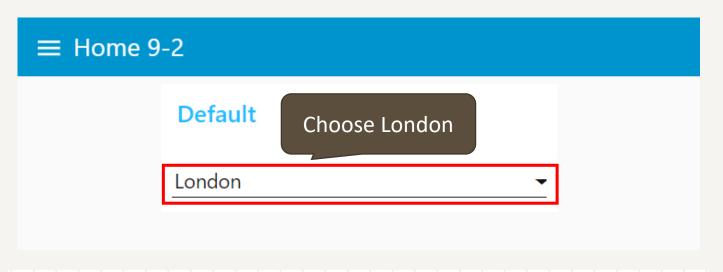
```
msg.payload : string[8]
"Taichung"
2023/11/15 下午3:15:37 node: debug 30
msg.payload : Object
 ▶ { location: object, current: object
2023/11/15 下午3:15:38 node: debug 31
msg.payload : Object
 vobject
  last updated epoch: 1700031600
  last updated: "2023-11-15 15:00"
  temp c: 26
  temp f: 78.8
  is day: 1
 ▶ condition: object
  wind mph: 9.4
  wind kph: 15.1
  wind degree: 360
  wind dir: "N"
  pressure mb: 1018
  pressure in: 30.06
```

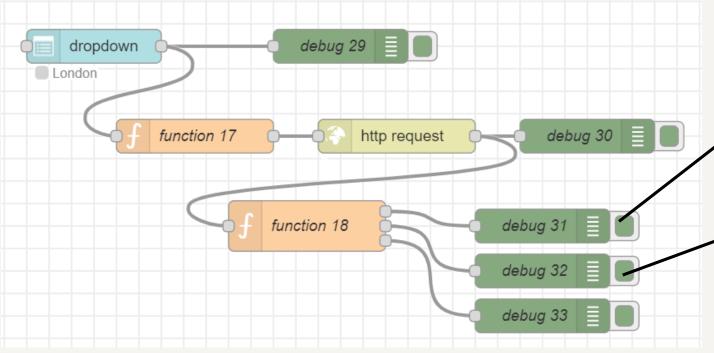
```
▶ condition: object
 wind mph: 9.4
 wind kph: 15.1
 wind degree: 360
 wind dir: "N"
 pressure mb: 1018
 pressure in: 30.06
 precip_mm: 0
 precip_in: 0
 humidity: 61
 cloud: 25
 feelslike c: 26.8
 feelslike f: 80.2
 vis km: 10
 vis miles: 6
uv: 7
 gust mph: 10
 gust kph: 16.2
```

```
London
                                                               function 17
                                                                                                   debug 30
                                                                                  http request
                                                                                                              Add
                                                                          function 18
                                                                                               debug 31
                                                                                               debug 32
var obj = msg.payload;
                                                                                                              Add
                                                                                               debug 33
var current = obj.current;
var temp_c = current.temp_c;
var humidity = current.humidity;
var uv = current.uv;
                                                             Edit function node
msg={};
let msg1={};
                                                                                                       Cancel
                                                                                                               Done
                                                              Delete
let msg2={};
                                                                                                               Properties
msg.topic = "temperature";
msg.payload = temp_c;
                                                              Name 
                                                                                                               function 18
msg1.topic = "humidity";
msg1.payload = humidity;
                                                               Setup
                                                                            On Start
                                                                                         On Message
                                                                                                      On Stop
msg2.topic = "uv";
                                                              Cutputs
msg2.payload = uv;
                                                                                    ① Timeout
return [msg,msg1,msg2];
```

dropdown

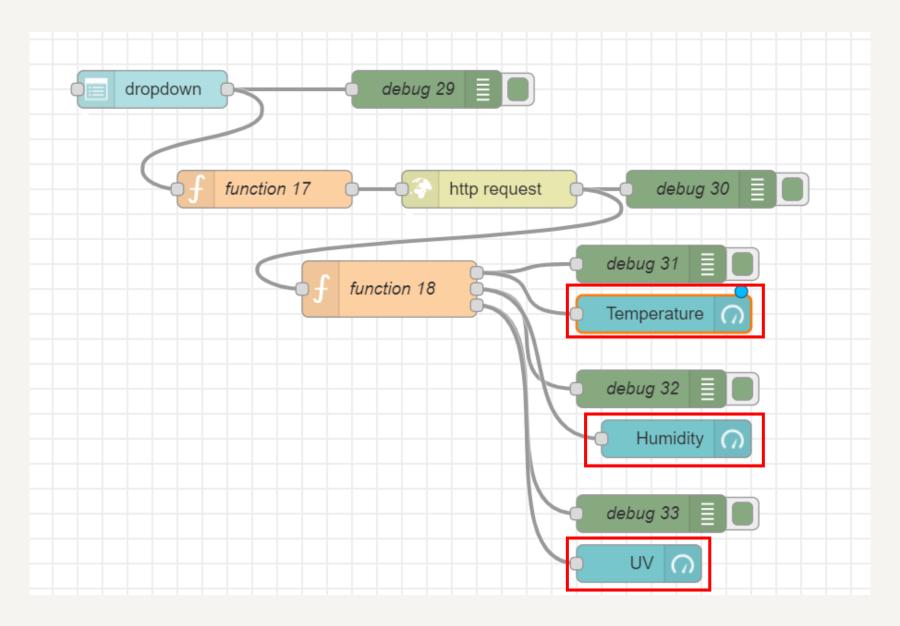
debug 29

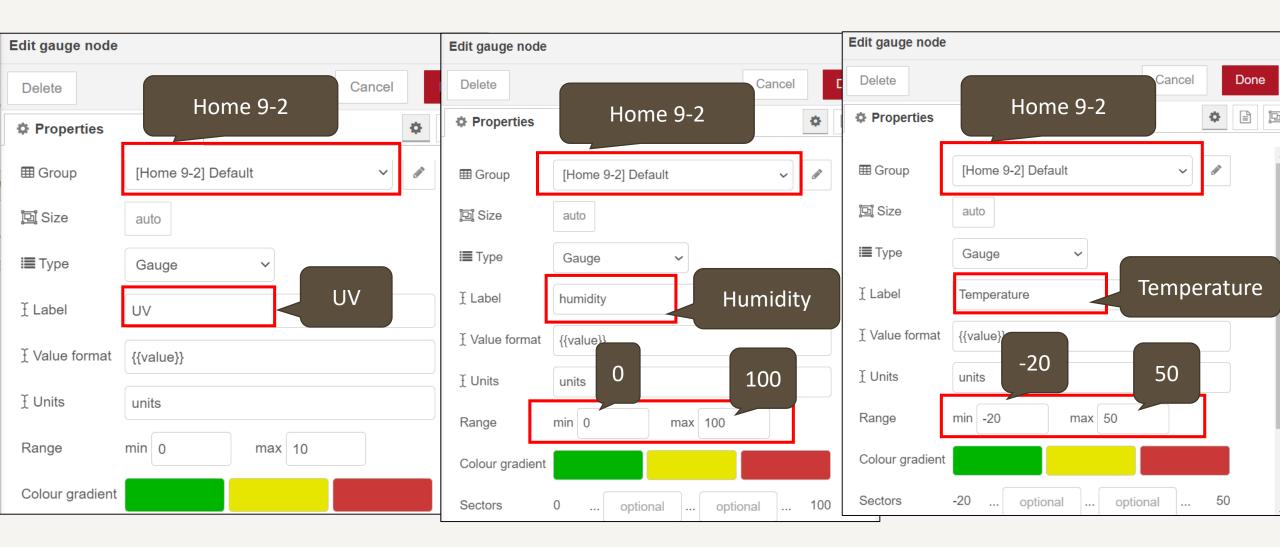


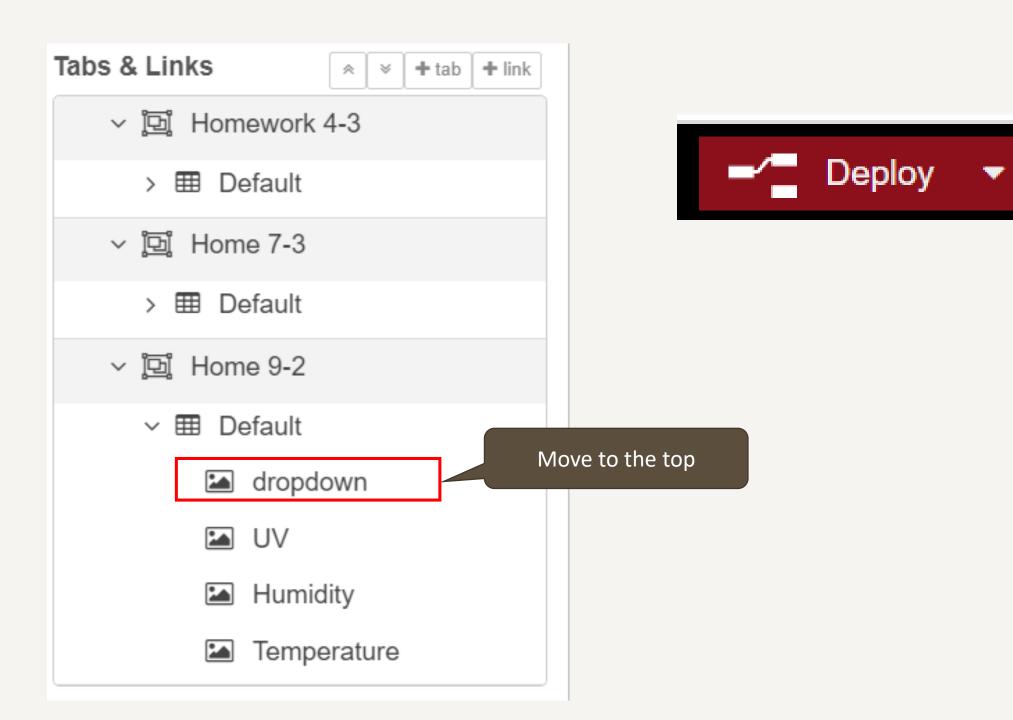


```
2023/11/15 下午3:22:02 node: debug 29
msg.payload : string[6]
"London"
2023/11/15 下午3:22:02 node: debug 30
msg.payload : Object
 ▶ { location: object, current:
object }
2023/11/15 下午3:22:02 node: debug 31
temperature : msg.payload : number
2023/11/15 下午3:22:02 node: debug 32
humidity: msg.payload: number
93
2023/11/15 下午3:22:02 node: debug 33
uv : msg.payload : number
1
```

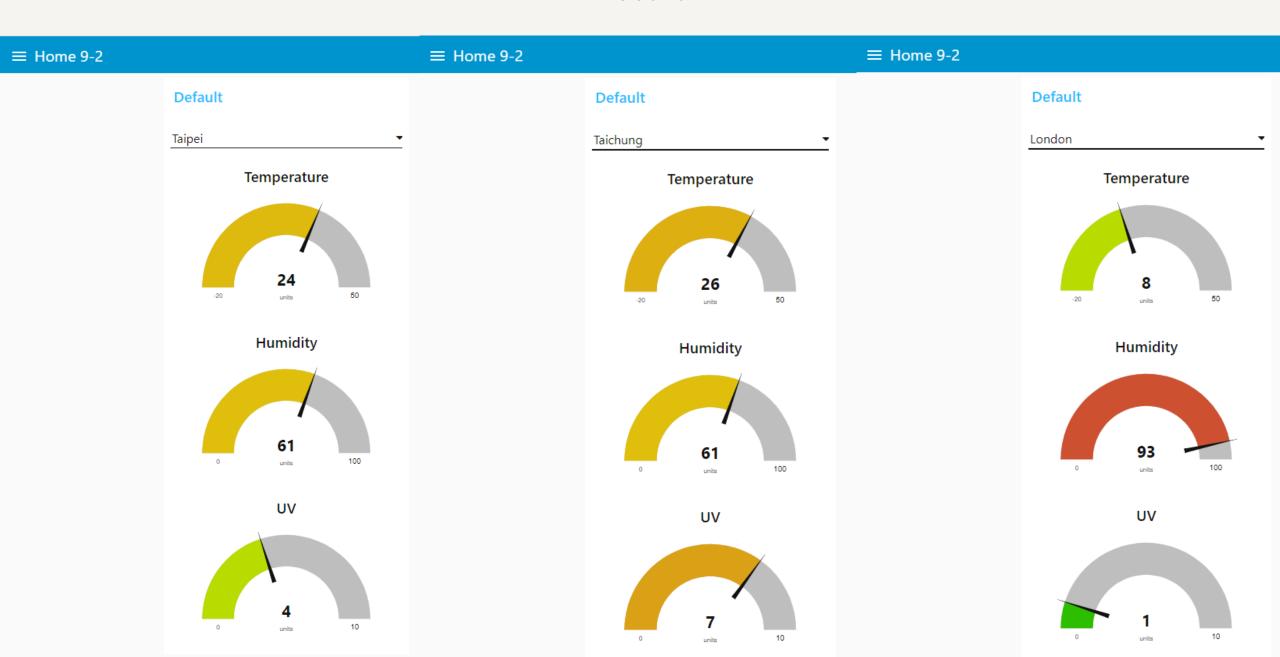
Add gauge





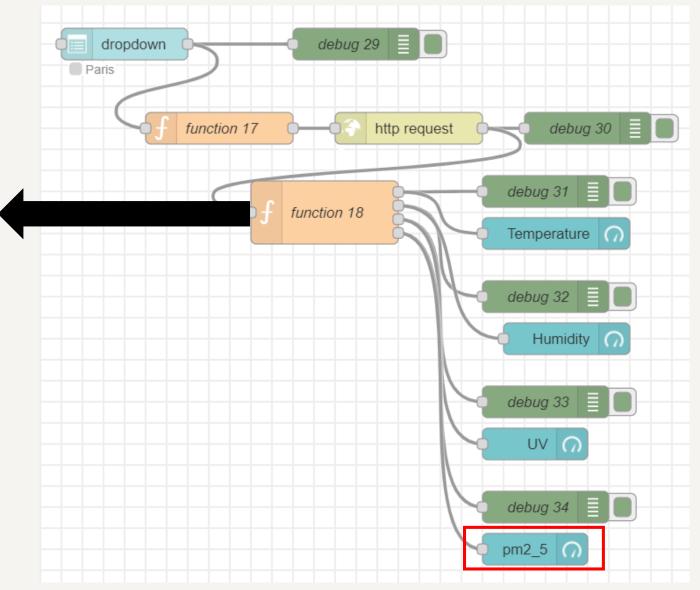


Result



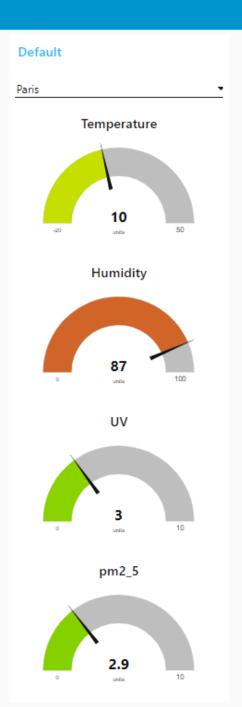
Add a pm2_5 gauge

```
var obj = msg.payload;
var current = obj.current;
var temp_c = current.temp_c;
var humidity = current.humidity;
var uv = current.uv;
var pm2_5 = current.air_quality.pm2_5;
msg={};
let msg1={};
let msg2={};
let msg3={};
msg.topic = "temperature";
msg.payload = temp_c;
msg1.topic = "humidity";
msg1.payload = humidity;
msg2.topic = "uv";
msg2.payload = uv;
msg3.topic = "pm2_5";
msg3.payload = pm2_5;
return [msg,msg1,msg2,msg3];
```



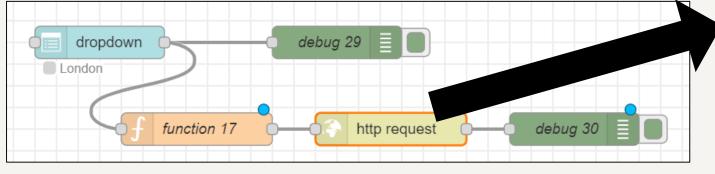
Edit gauge node

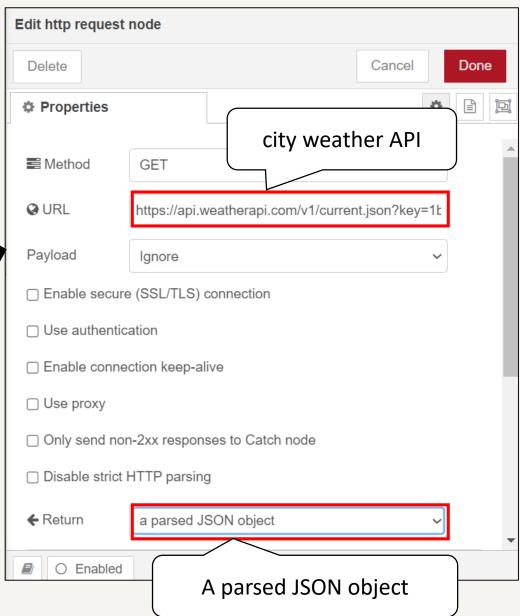


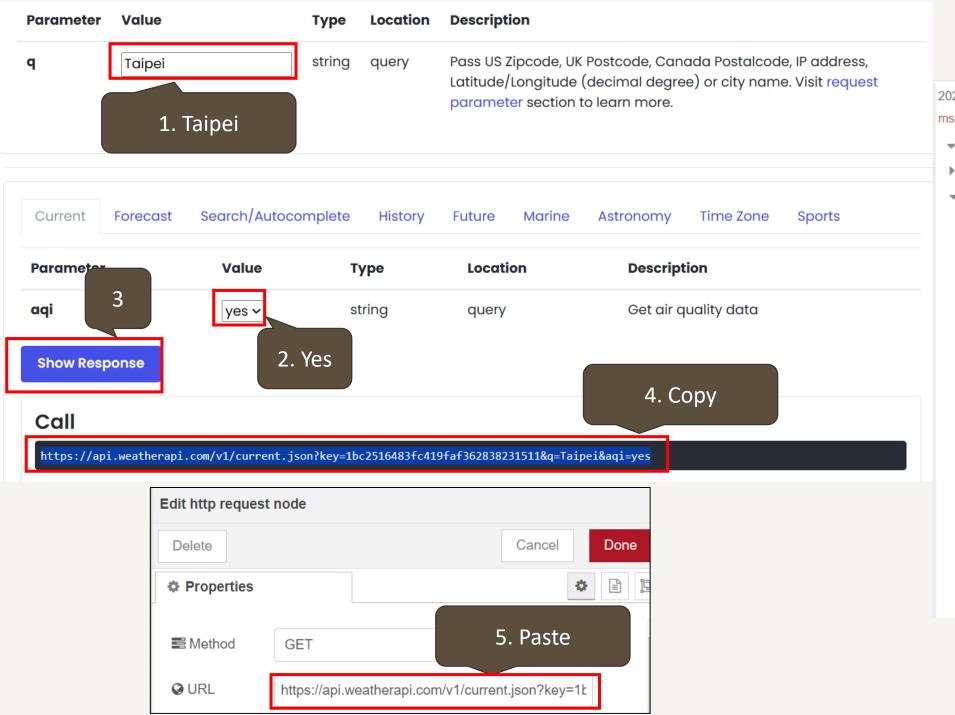


Homework 9-1

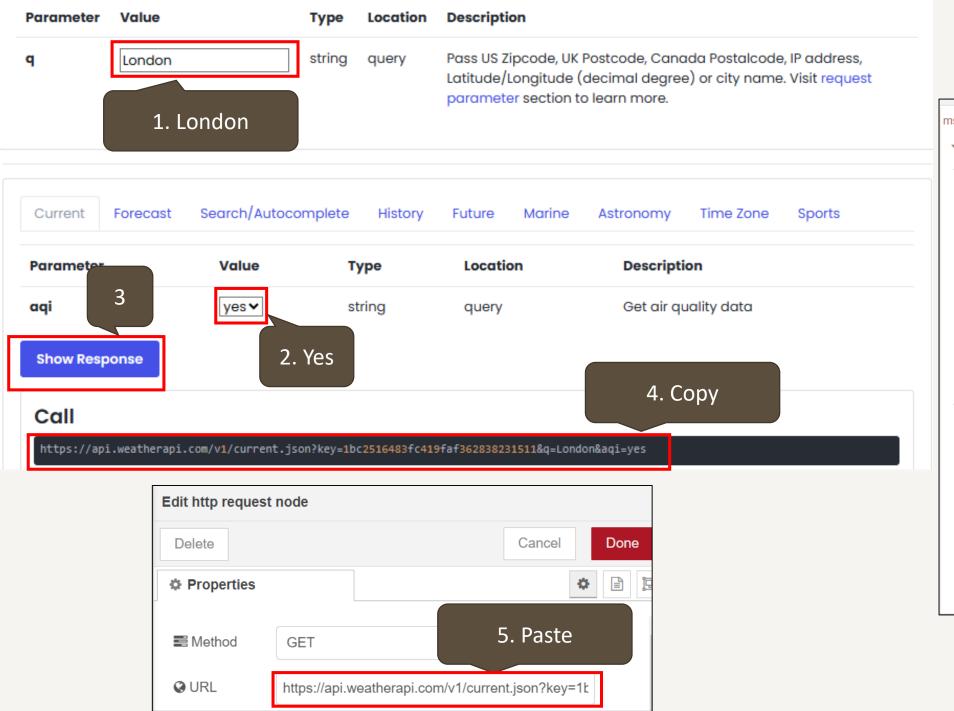
- Test the weather API for seven different cities.
- Taipei
- London
- Singapur
- Paris
- Taichung
- Taoyuan
- New Yor



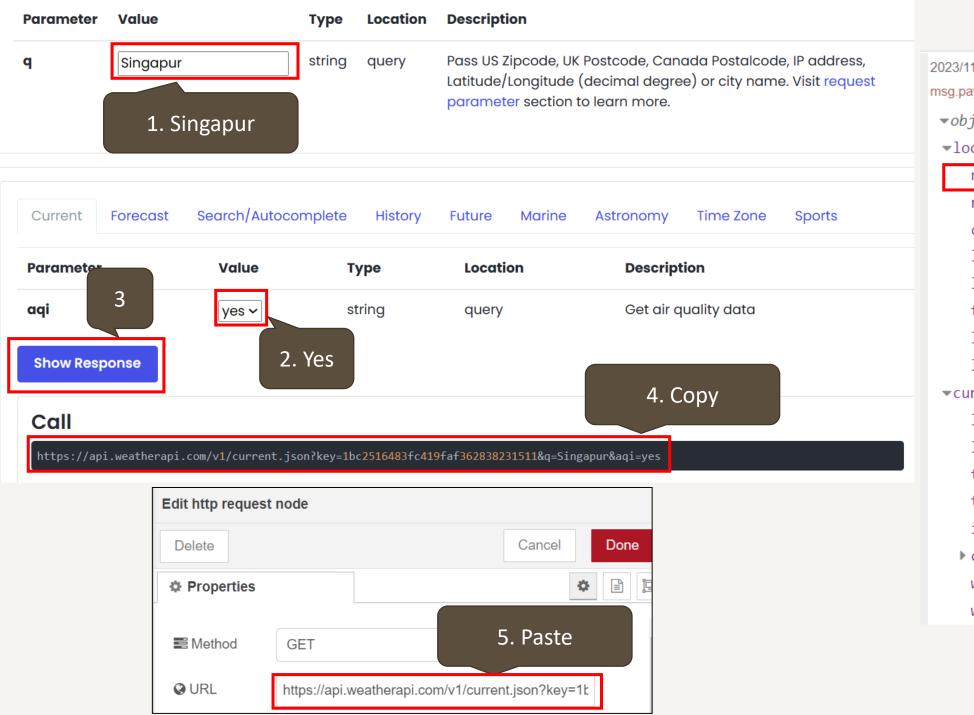




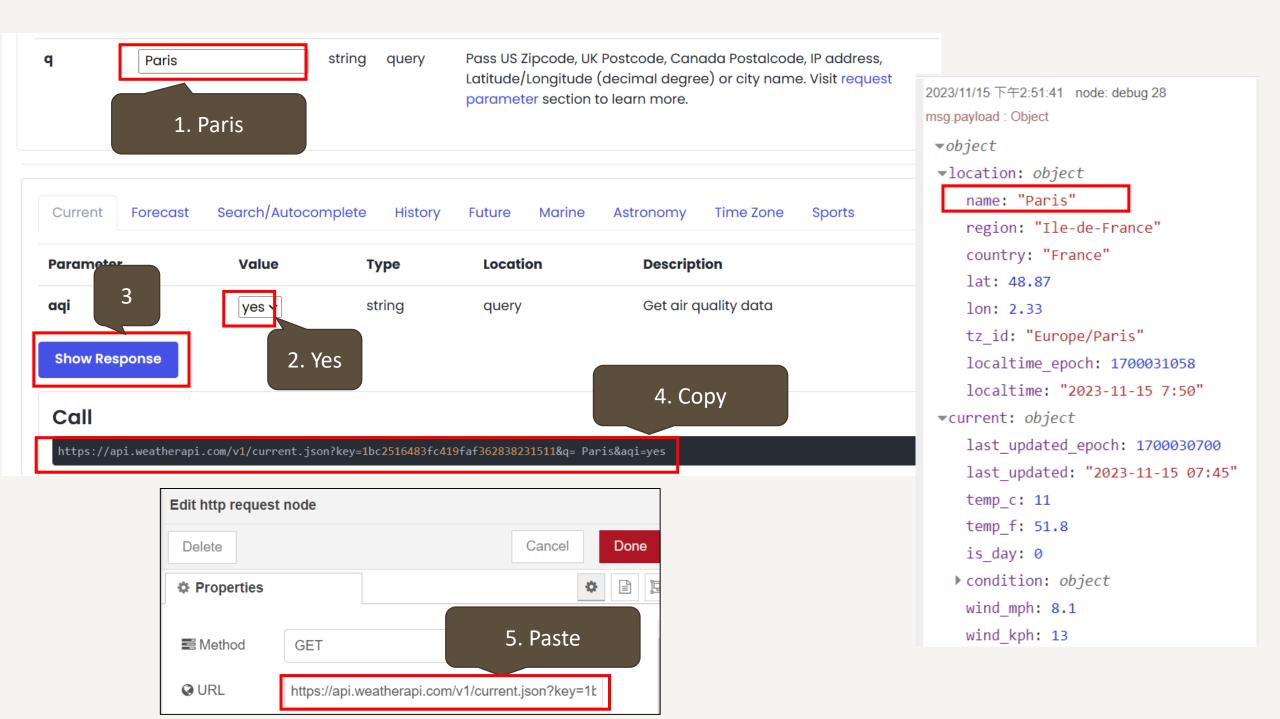
```
2023/11/15 下午2:48:29 node: debug 28
msg.payload: Object
 ▼object
 ▶ location: object
 ▼current: object
     last updated epoch: 1700030700
     last updated: "2023-11-15 14:45"
     temp c: 24
    temp f: 75.2
    is_day: 1
   ▶ condition: object
    wind_mph: 24.2
    wind_kph: 38.9
     wind degree: 90
    wind dir: "E"
     pressure mb: 1021
     pressure_in: 30.15
     precip mm: 0.04
     precip_in: 0
     humidity: 65
     cloud: 50
```

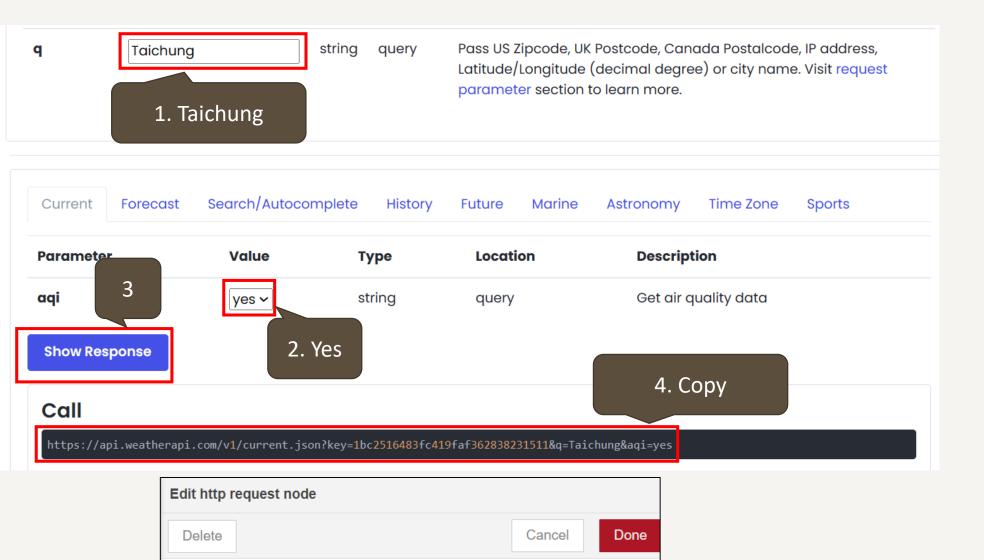


```
msg.payload: Object
▼object
 ▼location: object
    name: "London"
    region: "City of London, Greater
    London"
    country: "United Kingdom"
    lat: 51.52
    lon: -0.11
    tz id: "Europe/London"
    localtime epoch: 1700030768
    localtime: "2023-11-15 6:46"
 ▼current: object
    last updated epoch: 1700030700
    last updated: "2023-11-15 06:45"
    temp c: 8
    temp f: 46.4
    is day: 0
   ▶ condition: object
    wind_mph: 10.5
    wind kph: 16.9
```



2023/11/15 下午2:50:33 node: debug 28 msg.payload: Object **▼**object ▼location: object name: "Singapur" region: "Sonora" country: "Mexico" lat: 27.44 lon: -110.23 tz id: "America/Hermosillo" localtime epoch: 1700030990 localtime: "2023-11-14 23:49" ▼current: object last_updated_epoch: 1700030700 last updated: "2023-11-14 23:45" temp c: 21 temp f: 69.8 is day: 0 ▶ condition: *object* wind mph: 8.5 wind kph: 13.7





Properties

Method

URL

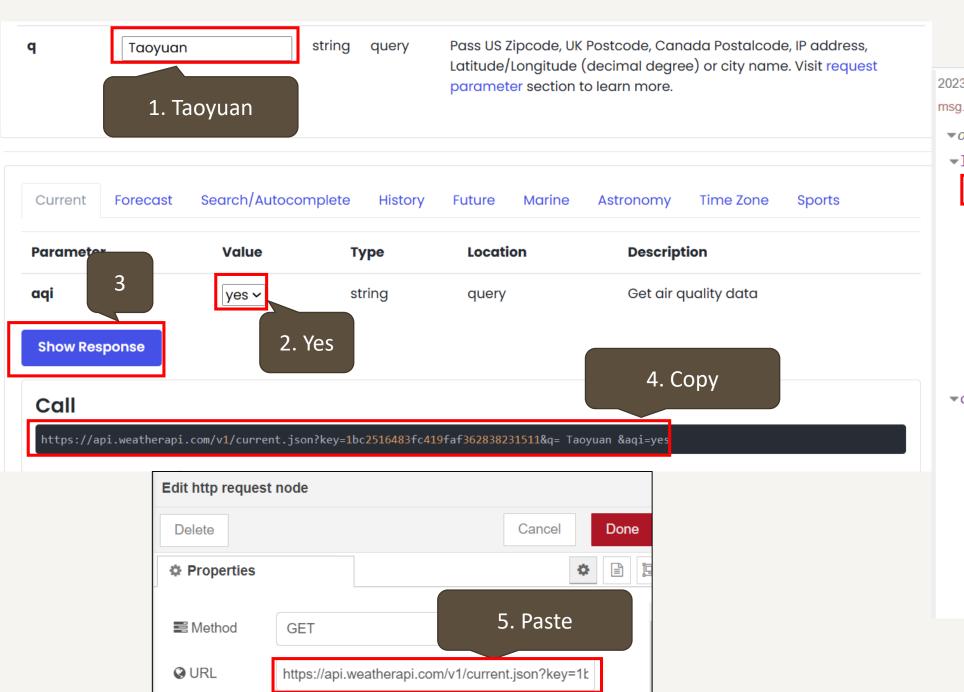
GET

\$

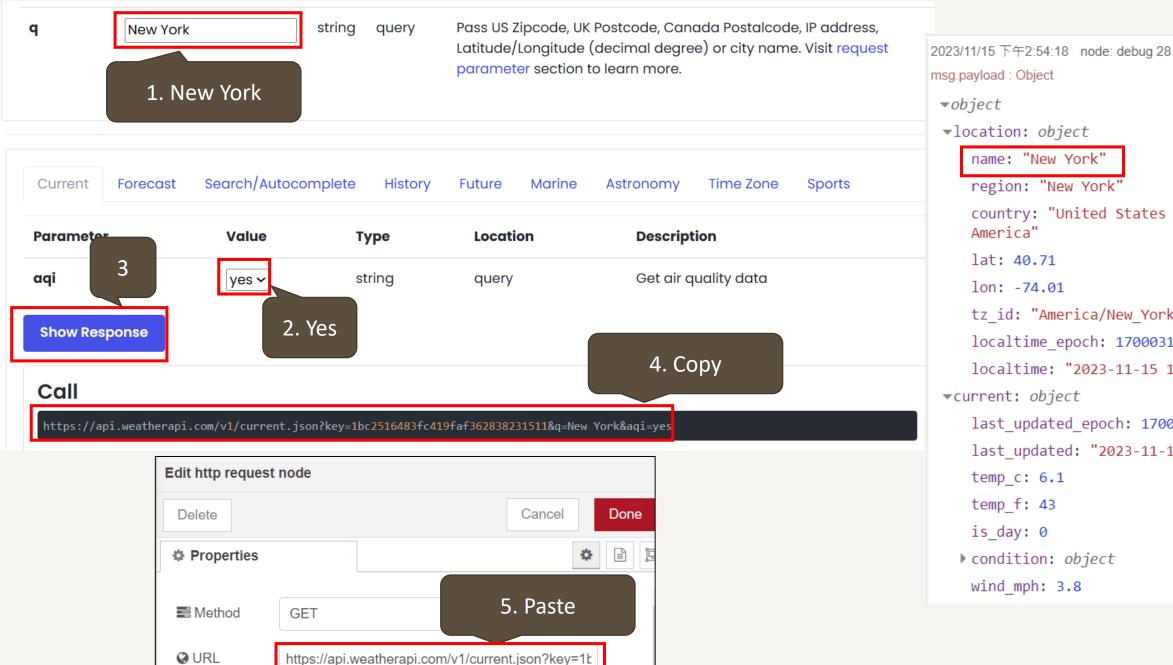
5. Paste

https://api.weatherapi.com/v1/current.json?key=1k

```
2023/11/15 下午2:52:32 node: debug 28
msg.payload : Object
 ▼object
 ▼location: object
    name: "Taichung"
    region: "T'ai-wan'
    country: "Taiwan"
    lat: 24.14
    lon: 120.68
    tz id: "Asia/Taipei"
    localtime_epoch: 1700031110
    localtime: "2023-11-15 14:51"
 ▼current: object
    last_updated_epoch: 1700030700
    last updated: "2023-11-15 14:45"
    temp c: 27
    temp f: 80.6
    is_day: 1
   ▶ condition: object
    wind mph: 10.5
    wind kph: 16.9
```



```
2023/11/15 下午2:53:28 node: debug 28
msg.payload : Object
 ▼object
 ▼location: object
     name: "Taoyuan"
     region: "T'ai-wan'
     country: "Taiwan"
     lat: 24.99
     lon: 121.31
    tz id: "Asia/Taipei"
     localtime epoch: 1700031165
     localtime: "2023-11-15 14:52"
 ▼current: object
     last updated epoch: 1700030700
    last updated: "2023-11-15 14:45"
    temp c: 24
    temp_f: 75.2
    is day: 1
   ▶ condition: object
    wind mph: 25.5
    wind kph: 41
```

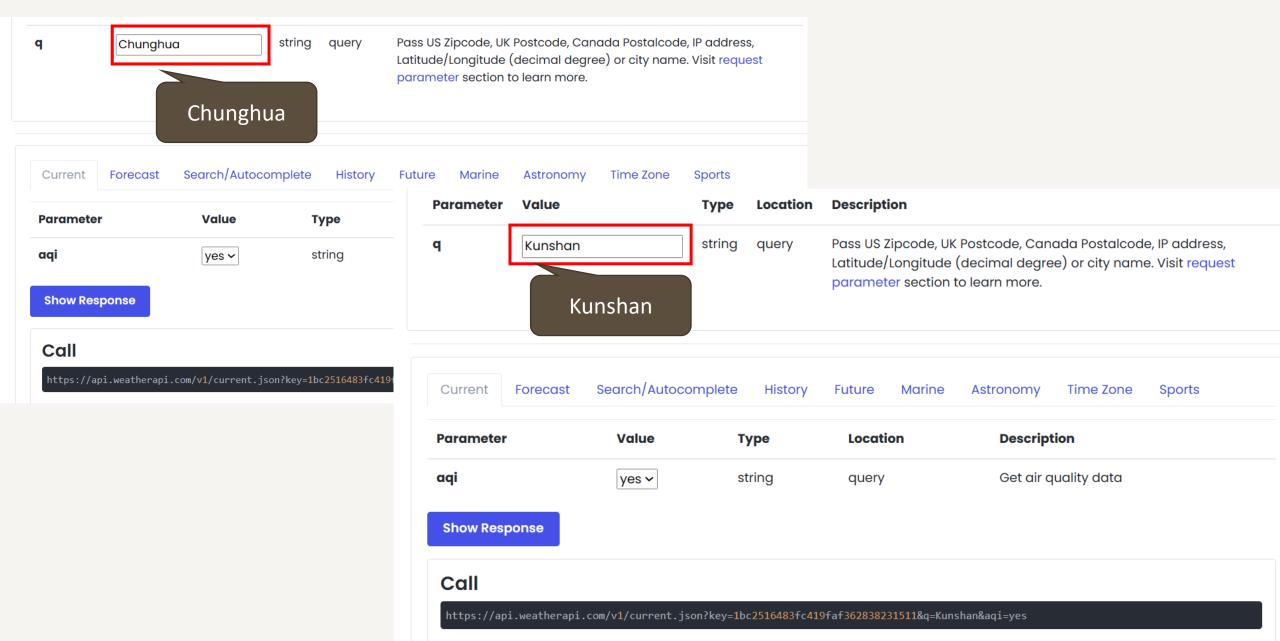


country: "United States of tz id: "America/New York" localtime epoch: 1700031216 localtime: "2023-11-15 1:53" last updated epoch: 1700030700 last updated: "2023-11-15 01:45"

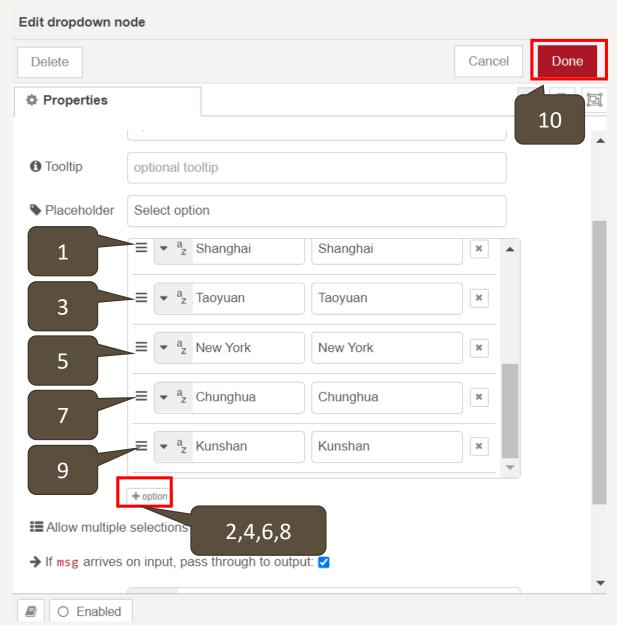
Homework 9-2

- Design ten cities weather station
- London Singapur Shanghai Taipei Taichung Taoyuan New York ??
 - **55 5**

Verify cities Weather Information



Add Option





Add Shanghai, Taoyuan, New York, Chunghua, Kunshan weather information

ten cities weather station

