

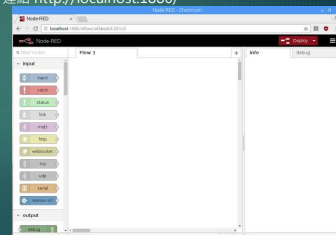
嵌入式系統

Lab 07: Getting start with Node-RED

銘傳大學 電腦與通訊工程學系 羅嘉寧

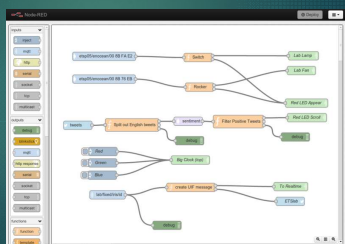
連結 Node-Red

- ▶ 使用 PC Chrome/IE 連線到 RPi
 - ▶ <http://raspberrypi.local:1880/>
- ▶ 使用 VNC 連結到 RPi
 - ▶ 在 RPi 中 Chrome 連結 <http://localhost:1880/>



什麼是 Node-RED?

- ▶ Node-RED 是 IBM 以 Node.js 為基礎而開發出來的視覺化 IOT 開發工具。



Node-Red with RPi - RPIO



安裝 Node-Red

- ▶ 安裝
 - ▶ `sudo apt-get install python-rpi.gpio`
 - ▶ `sudo apt-get install node.js nodered`
 - ▶ `sudo reboot`
- ▶ 啟動/停止
 - ▶ `node-red-start / node-red-stop`
 - ▶ 會開啟 Port 1880
- ▶ 自動開機啟動
 - ▶ `sudo systemctl enable nodered.service`

Node-Red GPIO Functions



RPI.GPIO out

Edit rpi-gpio out node
 Cancel Done

● GPIO Pin 11 - GPIO17 PI 3 Model B

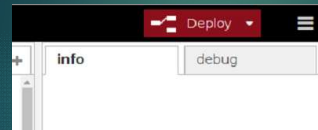
Type: Digital output

☒ Initialise pin state?
 Initial level of pin - low (0)

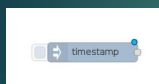
Name: Green LED

Pins in Use: 11
 Tip: For digital output - input must be 0 or 1..

Deploy



Inject messages



Edit inject node
 Cancel Done

Payload: 1

Topic:

Repeat: none

☐ Inject once at start?

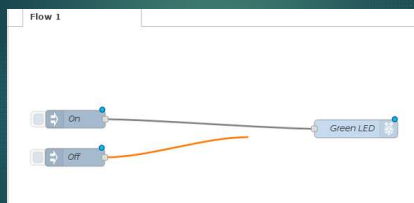
Name: On

Notes: "interval between times" and "at a specific time" will use cron. See info box for details.

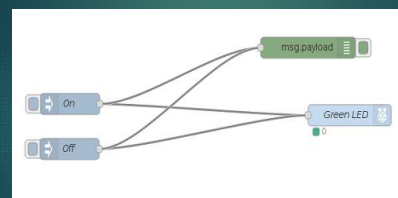
Run



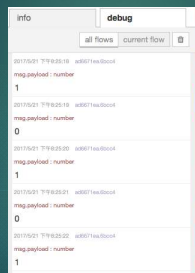
Inject Messages



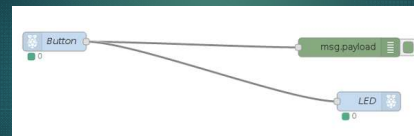
Debug your flow



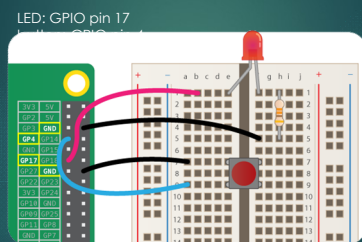
Debug



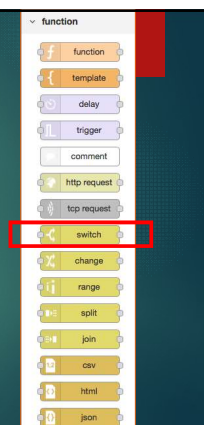
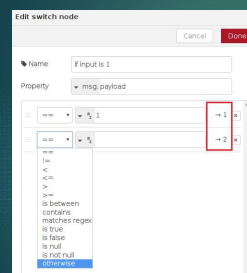
use Button to control LED



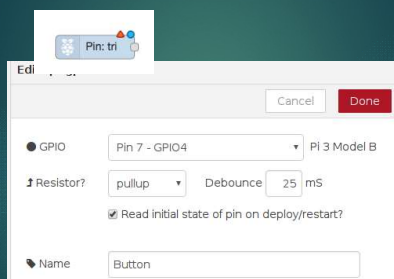
Add a button



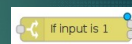
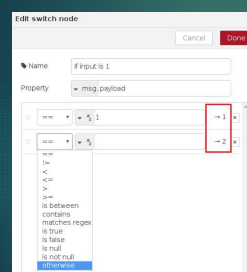
Switch

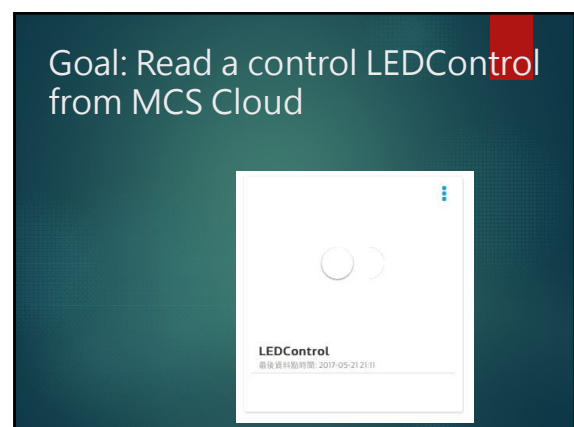
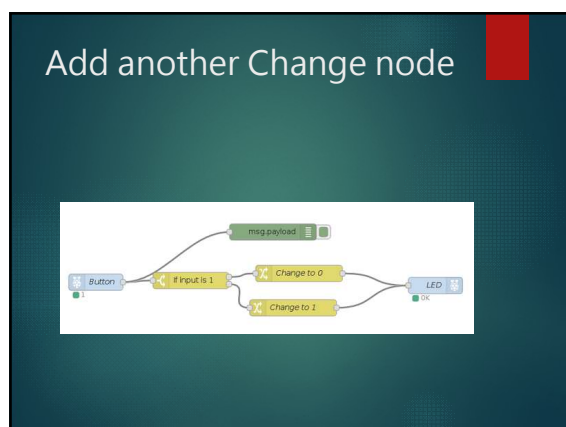
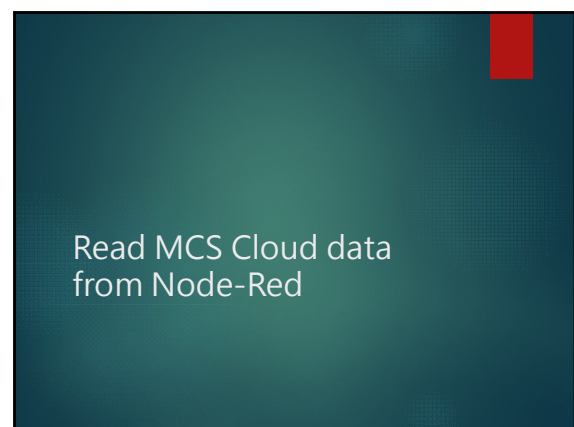
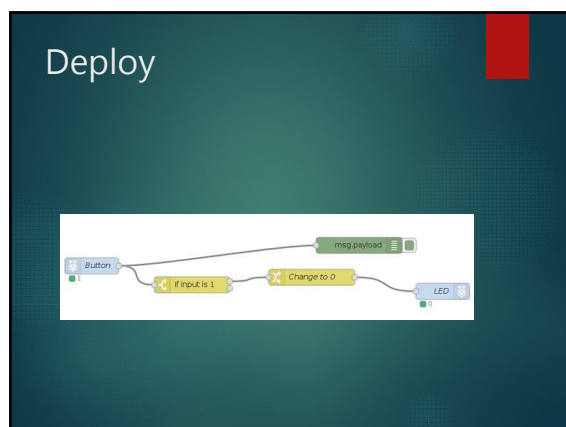
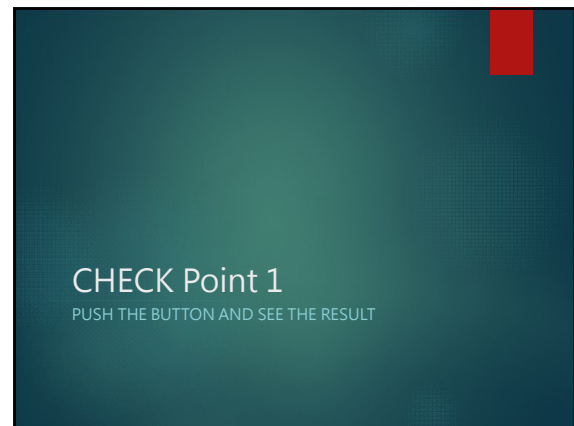
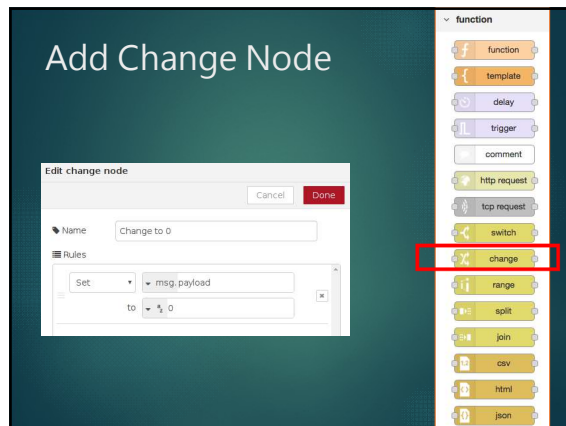


GPIO-In

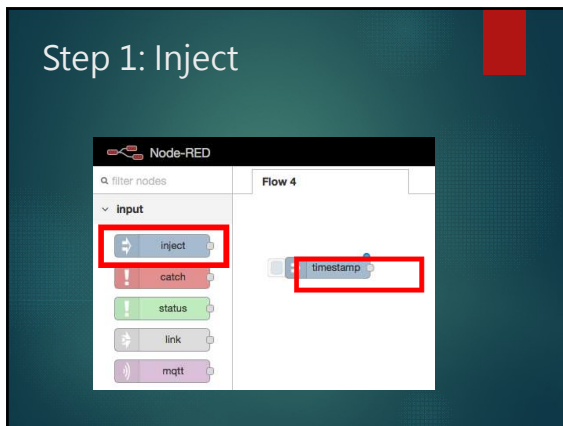


Switch Node

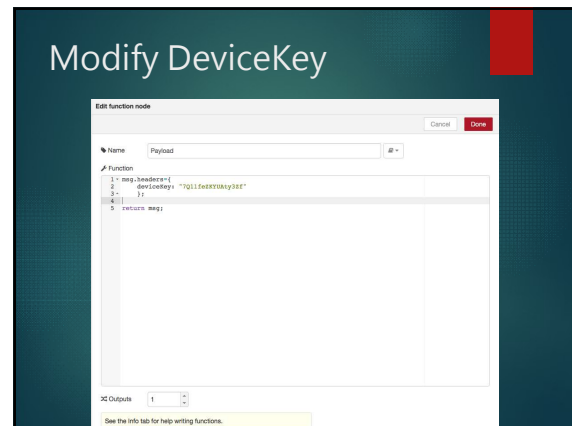




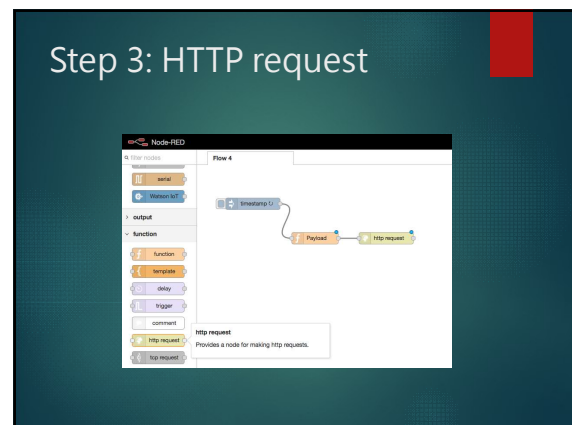
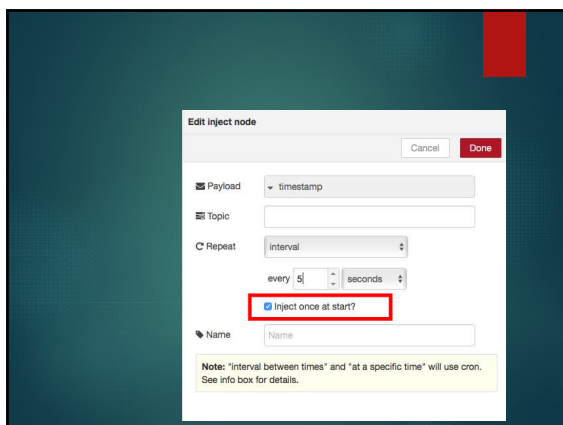
Step 1: Inject



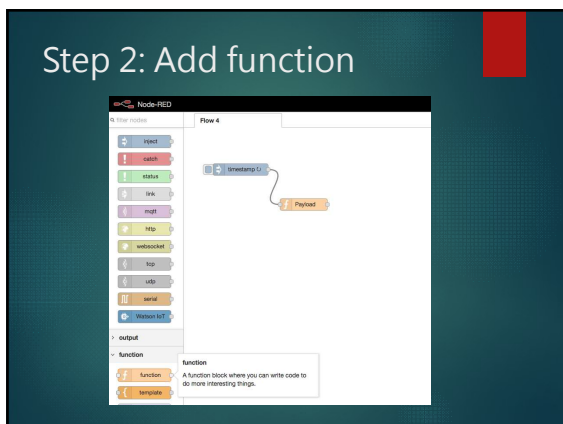
Modify DeviceKey



Step 3: HTTP request

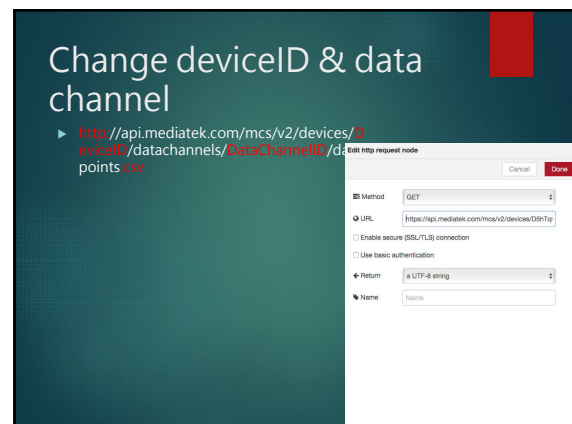


Step 2: Add function

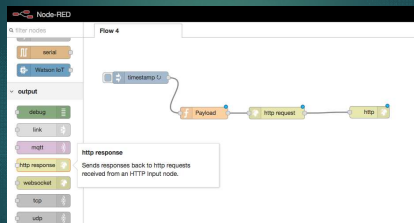


Change deviceID & data channel

▶ <http://api.mediatek.com/mcs/v2/devices/9e9c6e0/datachannels/DataChannelId/gd>



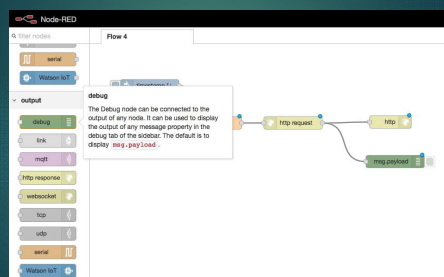
Step 4: add HTTP response



CHECK POINT2

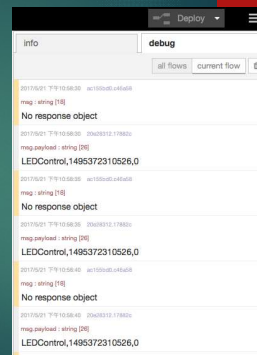
修改 DATACHANNEL, 由 NODE-RED 讀取溫濕度感應器之數值

Step 5: add debug

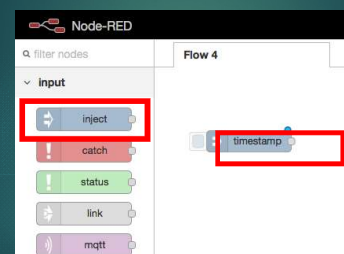


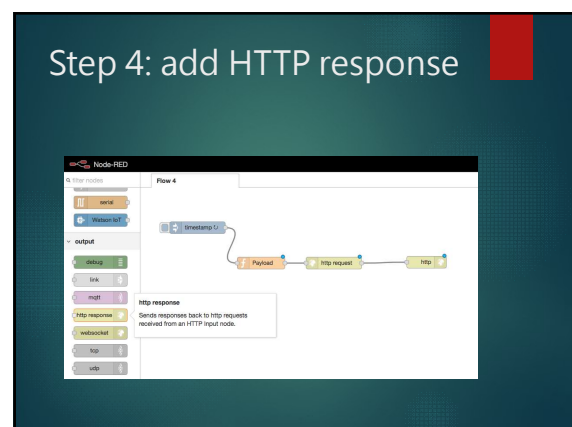
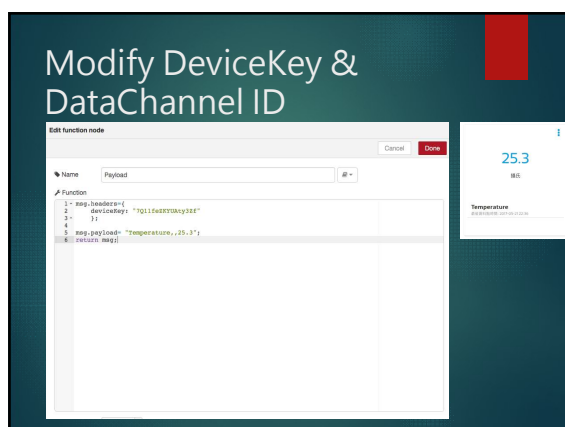
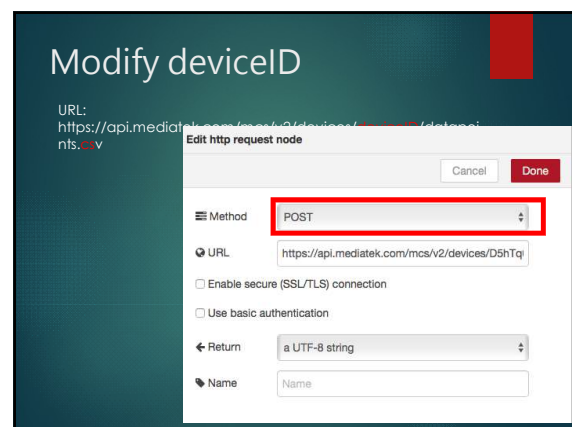
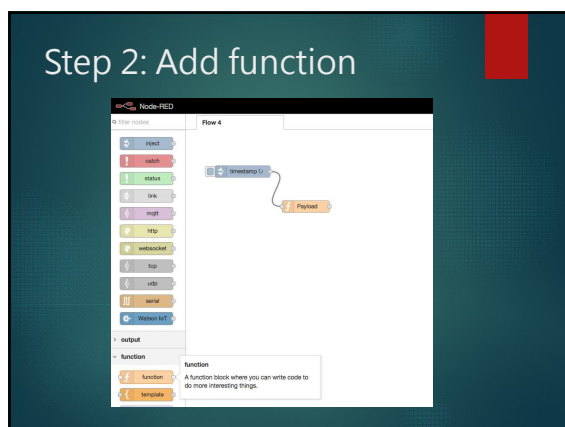
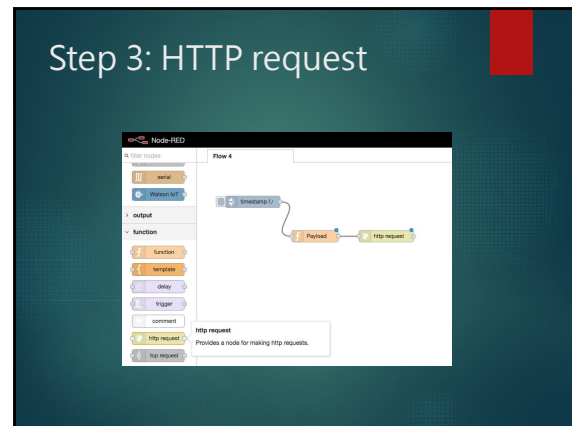
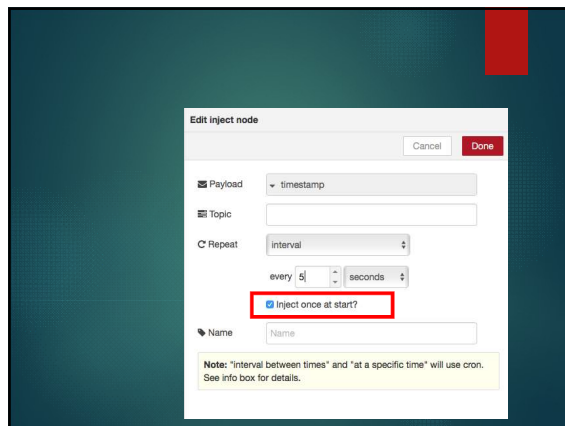
Modify MCS Cloud Data Channel with Node-Red

Step 6: Deploy

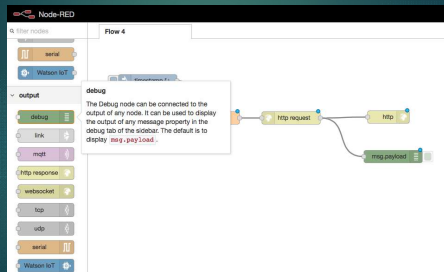


Step 1: Inject

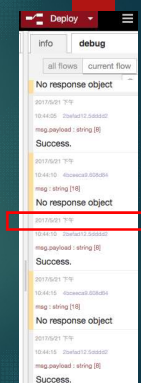




Step 5: add debug



Check debug messages
& MCS Cloud



CHECK POINT3

修改 DATACHANNEL, 由 NODE-RED 同時設定溫濕度感應器之數值