

# Advantech SE Technical Share Document

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Category	■ FAQ □ SOP □ Driver Tech Note			
Abstract	第三方軟體使用 WebAccess MQTT 格式建立上位機 WebAccess/SCADA 專案和傳值			
Keyword	WebAccess/SCADA, MQTT			
Related OS	Win7, Windows Server 2008 / 2012 / 2016, Win10			
Revision History				
Date	Version	Author	Reviewer	Description
2019/08/31	V1.0	Alger Tan		
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## ■ Problem Description & Architecture:

這份文件講解使用者如何按照 WebAccess MQTT 格式，從下位機第三方軟體 MQTTClientTest 經由上位機的 MQTT broker，發送建立上位機 WebAccess/SCADA 專案的指令，然後在專案執行時，從下位機發送 publish 指令，將測點值傳送到上位機。

## ■ Brief Solution - Step by Step:

### 1. 架構:

下位機 MQTTClientTest (172.16.16.142) – LAN – 上位機 WebAccess/SCADA (172.16.12.121)

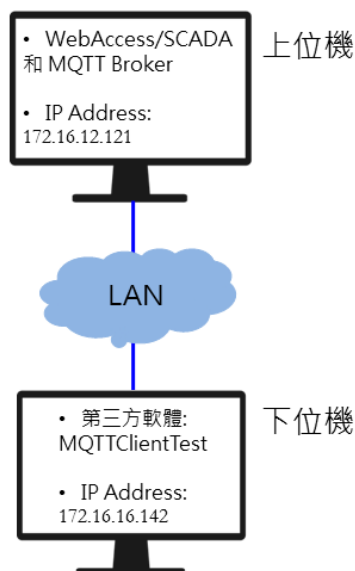


Figure 1: 架構圖

### 2. 首先，上位機必須先手動建立工程節點(e.g. upper)和監控節點(e.g. scada)

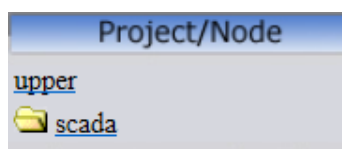


Figure 2: 工程和監控節點

### 3. 上位機啟用 MQTT broker

Project Home -> Project Management -> login -> MQTT Broker

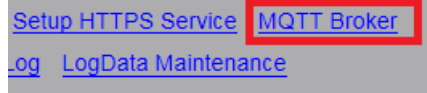


Figure 3: MQTT Broker

啟動 MQTT Broker

預設的使用者名稱和密碼都是 admin

A screenshot of the 'MQTT Broker Settings' form. The 'Enable' section has two radio buttons: 'Yes' (selected) and 'No'. Below this are input fields for 'UserName' (admin), 'Password' (admin), 'TCP Port' (1883), 'TLS Port' (8883), 'Websocket Port' (51328), and 'Websocket TLS Port' (51329). There is a checkbox for 'Show Password' which is checked. At the bottom is a field for 'Project Node Public IP'.

Figure 4: 啟用 MQTT Broker

### 4. 下位機執行第三方軟體 MQTTClientTest

- IP Address: 172.16.12.121 (MQTT Broker 電腦 IP Address)
- Port: 1883
- User name: admin
- Password: admin

A screenshot of the 'Form1' window for the MQTTClientTest application. It contains input fields for 'IP Address' (172.16.12.121), 'Port' (1883), 'ProjName', 'NodeName', 'UserName' (admin), 'Password' (admin), and 'Device Id'. There are 'Connect' and 'DisConnect' buttons. Below these are tabs for 'Subscribe', 'Publish', and 'Message'. Under the 'Subscribe' tab, there is a 'Topic #' field and a 'Subscribe' button.

Figure 5: 輸入 MQTT Broker 資訊

## 5. 下位機: 點“Connect”按鈕確認 MQTTClientTest 有成功連到 MQTT Broker

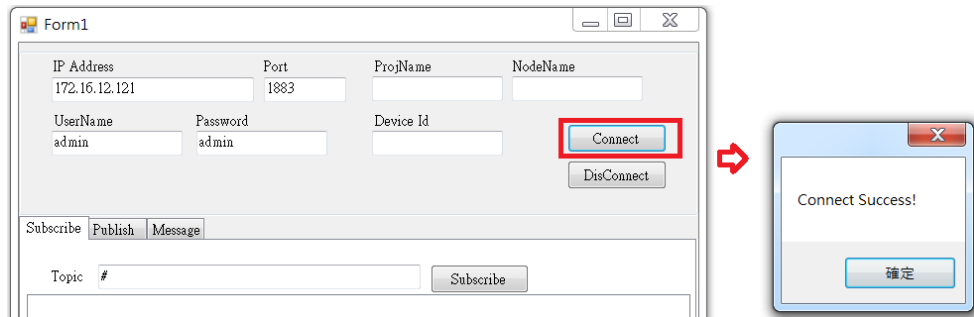


Figure 6: 成功連到 MQTT Broker

## 6. 下位機: 監看 MQTT message, 在 Subscribed 的 Topic 輸入 “#”, 然後按 “Subscribe”

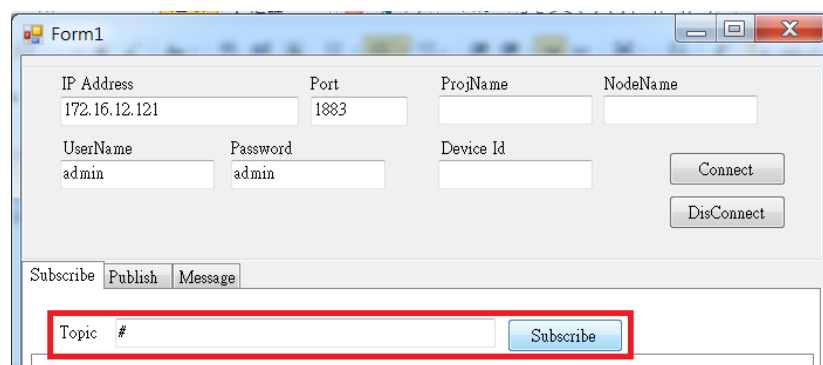


Figure 7: 在 Subscribe 輸入#

## 7. 下位機: 根據 WebAccess MQTT Specification 手冊, 使用 **wacfg** 指令在上位機建立設備和測點. 在 MQTTClientTest 軟體選“Publish” tag, 然後輸入下列 topic 和 message 指令, 然後按“publish”按鈕.

Topic:

iot-2/evt/**wacfg**/fmt/**upper\_scada**

Message:

```
{ "d": { "test_scada": { "TID": 1, "Hbt": 60, "BID": " ", "UTg": { "TMSEC": { "TID": 1, "Dsc": "Current Second", "Ary": 0, "RO": 0, "SH": 60, "SL": 0, "DSF": "2.0", "Alm": 0, "EU": "Second", "TypeWA": "9", "Log": 0 }, "DTg": null, "Dsc": "" }, "ts": "2019-08-27T16:05:23.971Z" }
```

註記:

1. 會在上位機 WebAccess/SCADA 建立一個為“test\_scada”的設備和一個“TMSEC”的測點

Form1

IP Address: 172.16.12.121 Port: 1883 ProjName: NodeName:

UserName: admin Password: admin Device Id: Connect DisConnect

Subscribe Publish Message

Topic: iot-2/evt/wacfg/fmt/upper\_scada

Message: {\"d\":{\"test\_scada\":{\"TID\":\"1\",\"Hbt\":\"60\",\"BID\":\"\"}} clear

Qos: 0

☒ batch Frequency: 1 second Publish

☐ HeartBeat Frequency: 5 second Stop

Figure 8: Publish Tab

- 下位機: 點選 Message tab 確認指令是否有發送到 MQTT Broker

Form1

IP Address: 172.16.12.121 Port: 1883 ProjName: NodeName:

UserName: admin Password: admin Device Id: Connect DisConnect

Subscribe Publish Message

Topic: iot-2/evt/wacfg/fmt/upper\_scada

Message: {\"d\":{\"test\_scada\":{\"TID\":\"1\",\"Hbt\":\"60\",\"BID\":\"\"}} clear

Qos: 0

☒ batch Frequency: 1 second Publish

☐ HeartBeat Frequency: 5 second Stop

Clear

[11:38:08] [iot-2/evt/wacfg/fmt/upper\_scada/test\_scada] : {\"d\":{\"Cfig\":\"1\",\"ts\":\"2019-08-30T03:38:08.309Z\"}}

Figure 9: Message Tab

- 回到上位機, 重新整理 WebAccess/SCADA 畫面, comport, 設備和測點已經成功建立

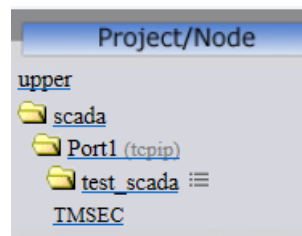


Figure 10: WebAccess/SCADA

10. 上位機: 下載和啟動 kernel, 到 View/ViewDAQ 點資訊看 TMSEC 測點值, 會顯示 \* [80a3], 表示沒收到測點值。

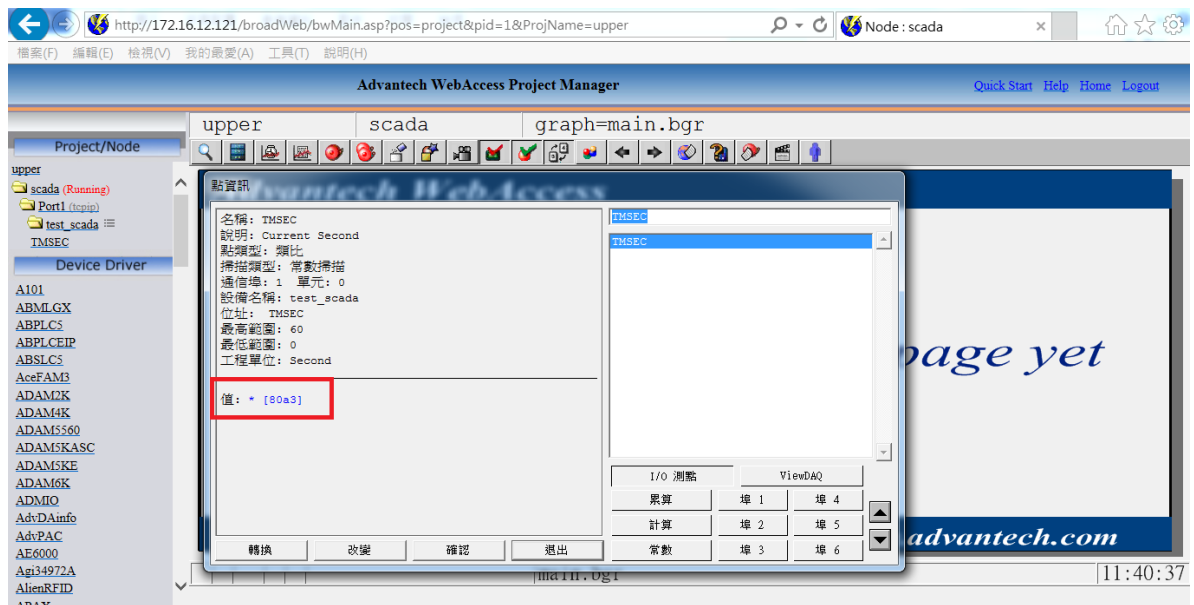


Figure 11: \* [80a30]

11. 下位機: 根據 WebAccess MQTT Specification 手冊, 使用 **wadata** 指令在上位機建立設備和測點。  
 Topic: **iot-2/evt/wadata/fmt/upper\_scada**  
 Message: {"d":{"test\_scada":{"Val":{"TMSEC":22}}},"ts":"2019-08-30T11:40:17.572Z"}

Figure 12: wadata 是 publish 指令

Note: ts 表示 timestamp, 雖然 WebAccess/SCADA 只會拿測點值, 但一定要填寫。

## 12. 上位機: TMSEC 成功顯示測點值 22

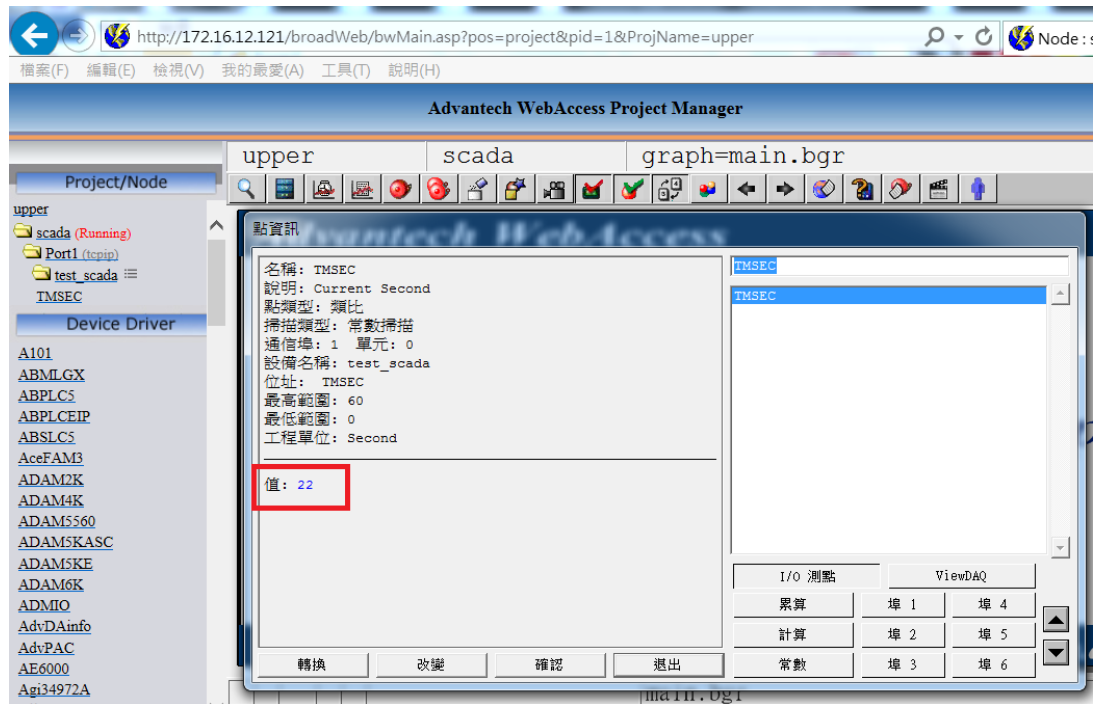


Figure 13: Point Info

- **Pin Definition (in case of serial connection):**
- **Reference:**  
WebAccess MQTT Design Specification for Device