

Advantech SE Technical Share Document

Date	2020 / 11 / 20	Related Product	EnSaaS4.0, Datahub, RabbitMQ	
Category	☐ FAQ ☒ SOP ☐ Driver Tech Note			
Abstract	如何同時使用定時上傳與變化上傳 MQTT 封包到 WISE-PaaS			
Keyword	WISE-PaaS, EnSaaS4.0, Datahub, RabbitMQ, MQTT			
Related OS				
Revision History				
Date	Version	Author	Reviewer	Description
2020/11/20	V1.0	Eden.Sun	Nick.Liu	First Edit.(By WebAccess 9.0.2)

■ Problem Description & Architecture:

如何同時使用定時上傳與變化上傳 MQTT 封包到 WISE-PaaS。

The screenshot displays the Advantech SCADA WebAccess interface. The top navigation bar includes the SCADA logo and '專案管理' (Project Management). The main content area shows the '202011 > mqttDemo > WISE-PaaS MQTT 連接器' (202011 > mqttDemo > WISE-PaaS MQTT Connector) configuration page. The '測點白名單' (Measurement Whitelist) tab is active, showing a table of configured measurement points:

測點	已選取	測點類型	測點名稱	描述	死區	掃描類型
T01	☒	類比	T01	Analog Output	0%	both
T02	☒	類比	T02	Analog Output	0%	both
T03	☒	類比	T03	Analog Output	0%	both
Timer	☒	類比	Timer	描述	0%	event

Below the configuration page, the 'Eclipse Paho MQTT Utility' window is open, showing the 'MQTT' tab. The 'Connection' section displays the server URI 'tcp://rabbitmq-001-pub.sa.wi' and the client ID 'paho-6381015250462'. The 'Subscription' section shows a list of topics, including '/wisepaas/scada/0-At Mo...'. The 'Publication' section shows a topic 'test' and a QoS of '0 - At Most Once'. The 'Message' section displays a list of received messages, including 'Received' and 'Sent' messages, with columns for Event, Topic, Message, QoS, Retained, and Time.

Brief Solution - Step by Step:

※請先確認 WebAccess/SCADA 版本，需於 WebAccess 9.0.2 版本之後

1. 登入 WebAccess 工程首頁，建立專案節點(Project Node)與監控節點(SCADA Node)，接著依據需求建立通信埠(Com Port)、設備(Device)與測點(Tag)

The screenshot shows the SCADA Project Management interface. The breadcrumb path is 202011 > mqttDemo. The main area displays a tree structure with 'mqttDe...' selected. Under 'mqttDe...', there is a '通信埠1(TCPIP)' node, which is connected to a 'modbus' device. The 'modbus' device is connected to '測點(3)' and '區塊(0)'. Below this, there are four nodes: '累算點', '計算點', '常數點', and '系統點', each with a corresponding '測點(1)'.

※ 於本範例中，共計建立 5 個測點(3 個設備點、1 個系統點、1 個計算點)

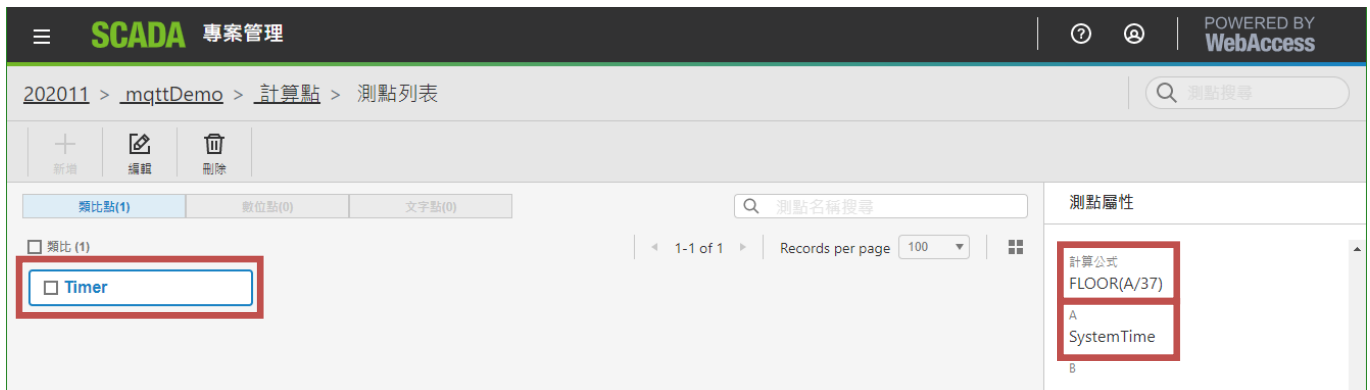
- 設備點，抓取設備數值 (本範例 T01：每 5 秒變化、T02：每 30 秒變化、T03：每 40 秒變化)

The screenshot shows the SCADA Project Management interface with the breadcrumb path 202011 > mqttDemo > 通信埠1(TCPIP) > modbus > 測點列表. The main area displays a table with three tags: T01, T02, and T03. The tags are highlighted with a red box.

- 系統點，使用 **TIMER_2**，抓取 WebAccess 運行的秒數

The screenshot shows the SCADA Project Management interface with the breadcrumb path 202011 > mqttDemo > 系統點 > 測點列表. The main area displays a table with one tag: System Time. The tag is highlighted with a red box. The right sidebar shows the '測點屬性' (Tag Properties) for 'System Time', with the parameter 'TIMER_2' highlighted.

- 計算點，使用 **FLOOR()**，計算 WebAccess 定時上傳的時間點 (本範例每 37 秒定時上傳)
 - ✧ A 參數：帶入系統點(SystemTime)
 - ✧ 計算公式：A 參數除以定時上傳的秒數並使用無條件捨去法 (**FLOOR(A/37)**)



※ 分母即為上傳所需的固定間隔時間(秒)

2. 進入編輯 WISE-PaaS MQTT 連接器設定。



※ 請依據 WISE-PaaS Datahub 上面建立的資訊來填寫

設置MQTT連接

*必填

NODE ID *

0e6bf73e-d910-424e-8a28-0a0de266cd5c

36/36

保活時間間隔 *

60 秒

資料上傳間隔 *

1 秒

2/6 1/6

金鑰 *

42825d904d8ec420c2cbdab388d69emx

32/36

DCCS API網址 *

http://api-dccs-ensaas.sa.wise-paas.com/

40/255

數值變化時上傳數據

☒ 是 ☐ 否

取消 提交

※ 請選擇『數值變化時上傳數據』為是

3. 設定上傳 WISE-PaaS MQTT 測點白名單

➤ 設備點

- ☐ 勾選需要上傳的測點
- ☐ 設定死區數值 (可勾選表頭死區，快速修改被勾選中的死區數值)
- ☐ 掃描類型選擇 both (可勾選表頭掃描類型，快速修改被勾選中的掃描類型)

測點	測點類型	測點名稱	描述	死區	掃描類型
☒	類比	T01	Analog Output	☐ 0 %	☐ both
☒	類比	T02	Analog Output	☐ 0 %	☐ both
☒	類比	T03	Analog Output	☐ 0 %	☐ both

※ 將需要『定時上傳』與『變動上傳』的測點，選擇『both』

➤ 系統點

❑ 不勾選系統點 (僅做為計算固定時間用)

※ 不需要勾選

➤ 計算點

❑ 勾選計算點

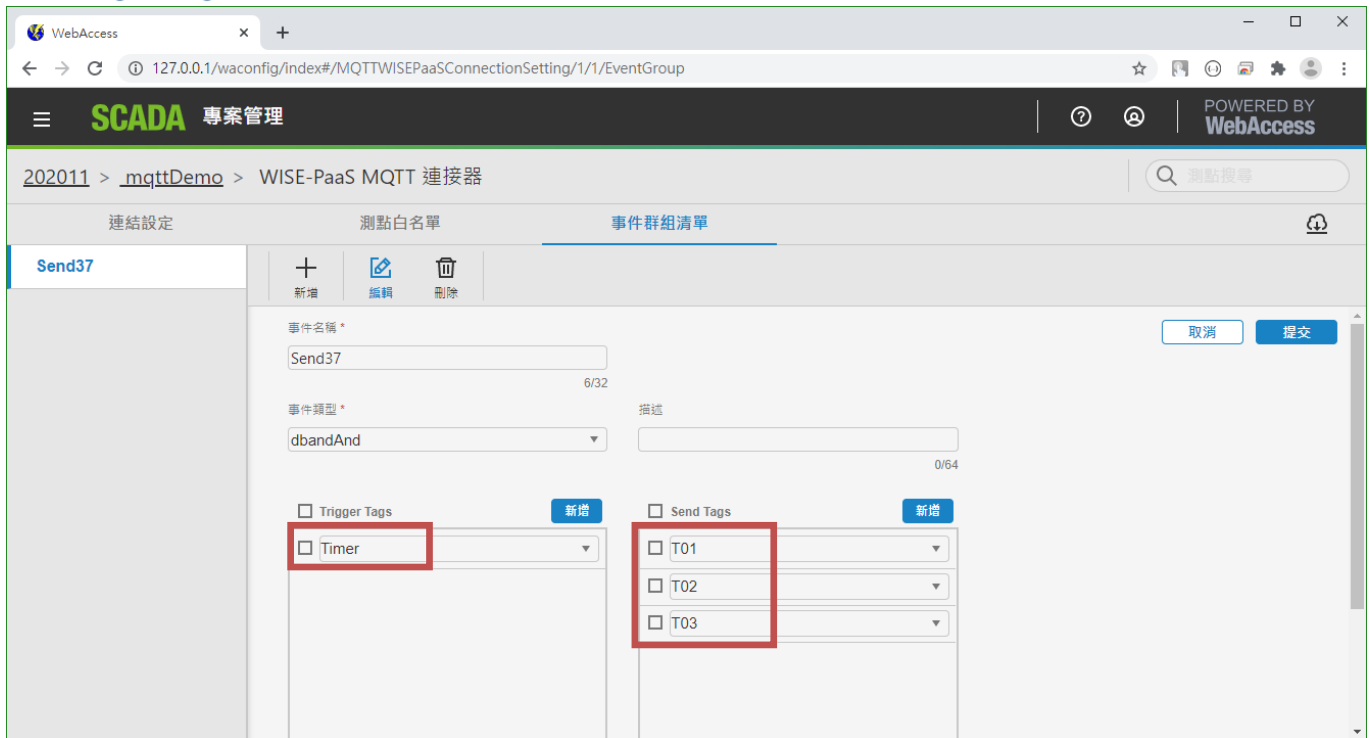
❑ 設定死區數值 (可勾選表頭死區，快速修改被勾選中的死區數值)

❑ 掃描類型選擇 event

4. 設定上傳 WISE-PaaS MQTT 事件群組清單

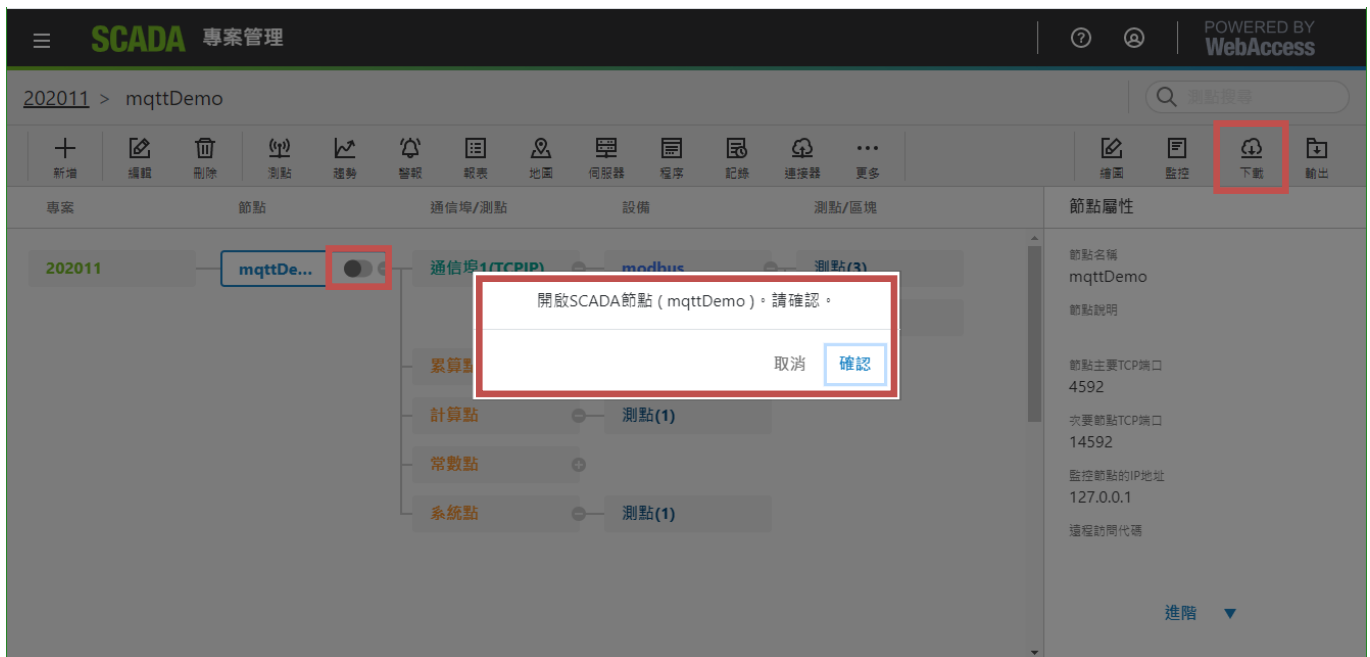
❑ 增加事件群組，利用計算點當作 Trigger Tags，觸發後上傳設備點(不包含觸發的系統點)

❑ 事件群組類型，因為單點觸發，所以 dbandAnd 或是 dbandOr 沒有差異



※ Trigger Tags 選擇計算點(Timer)，但不把此點加入上傳名單中

5. 下載專案，並啟動核心



6. 訂閱 WISE-PaaS DataHub RabbitMQ 來查看 MQTT 上傳狀況

- 紅色框內的為定時上傳 MQTT 數據
- 其餘的測點為變動上傳 MQTT 數據

Message	Time
{"d":{"P01_modbus":{"T01":0},"ts":"2020-11-27T02:28:38.64..."}	2020-11-27 10:28:38
{"d":{"P01_modbus":{"T01":1},"ts":"2020-11-27T02:28:43.66..."}	2020-11-27 10:28:43
{"d":{"P01_modbus":{"T01":2},"ts":"2020-11-27T02:28:48.67..."}	2020-11-27 10:28:48
{"d":{"P01_modbus":{"T01":3,"T02":1},"ts":"2020-11-27T02:28:53.68..."}	2020-11-27 10:28:53
{"d":{"P01_modbus":{"T01":4},"ts":"2020-11-27T02:28:58.51..."}	2020-11-27 10:28:58
{"d":{"P01_modbus":{"T01":5},"ts":"2020-11-27T02:29:03.54..."}	2020-11-27 10:29:03
{"d":{"P01_modbus":{"T01":5,"T02":1,"T03":0},"ts":"2020-11-27T02:29:05.56..."}	2020-11-27 10:29:05
{"d":{"P01_modbus":{"T03":1},"ts":"2020-11-27T02:29:07.55..."}	2020-11-27 10:29:07
{"d":{"P01_modbus":{"T01":6,"T02":2},"ts":"2020-11-27T02:29:08.57..."}	2020-11-27 10:29:08
{"d":{"P01_modbus":{"T01":7},"ts":"2020-11-27T02:29:13.58..."}	2020-11-27 10:29:13
{"d":{"P01_modbus":{"T01":8},"ts":"2020-11-27T02:29:18.60..."}	2020-11-27 10:29:18
{"d":{"P01_modbus":{"T01":9,"T02":3},"ts":"2020-11-27T02:29:23.61..."}	2020-11-27 10:29:23
{"d":{"P01_modbus":{"T01":10},"ts":"2020-11-27T02:29:28.62..."}	2020-11-27 10:29:28
{"d":{"P01_modbus":{"T01":11},"ts":"2020-11-27T02:29:33.63..."}	2020-11-27 10:29:33
{"d":{"P01_modbus":{"T01":12,"T02":4},"ts":"2020-11-27T02:29:38.64..."}	2020-11-27 10:29:38
{"d":{"P01_modbus":{"T01":12,"T02":4,"T03":1},"ts":"2020-11-27T02:29:42.65..."}	2020-11-27 10:29:42
{"d":{"P01_modbus":{"T01":13},"ts":"2020-11-27T02:29:43.5..."}	2020-11-27 10:29:43
{"d":{"P01_modbus":{"T03":2},"ts":"2020-11-27T02:29:47.56..."}	2020-11-27 10:29:47
{"d":{"P01_modbus":{"T01":14},"ts":"2020-11-27T02:29:48.5..."}	2020-11-27 10:29:48
{"d":{"P01_modbus":{"T01":15,"T02":5},"ts":"2020-11-27T02:29:53.57..."}	2020-11-27 10:29:53
{"d":{"P01_modbus":{"T01":16},"ts":"2020-11-27T02:29:58.58..."}	2020-11-27 10:29:58
{"d":{"P01_modbus":{"T01":17},"ts":"2020-11-27T02:30:03.59..."}	2020-11-27 10:30:03
{"d":{"P01_modbus":{"T01":18,"T02":6},"ts":"2020-11-27T02:30:08.60..."}	2020-11-27 10:30:08
{"d":{"P01_modbus":{"T01":19},"ts":"2020-11-27T02:30:13.61..."}	2020-11-27 10:30:13
{"d":{"P01_modbus":{"T01":20},"ts":"2020-11-27T02:30:18.62..."}	2020-11-27 10:30:18
{"d":{"P01_modbus":{"T01":20,"T02":6,"T03":2},"ts":"2020-11-27T02:30:19.63..."}	2020-11-27 10:30:19
{"d":{"P01_modbus":{"T01":21,"T02":7},"ts":"2020-11-27T02:30:23.64..."}	2020-11-27 10:30:23
{"d":{"P01_modbus":{"T03":3},"ts":"2020-11-27T02:30:27.69..."}	2020-11-27 10:30:27
{"d":{"P01_modbus":{"T01":22},"ts":"2020-11-27T02:30:28.5..."}	2020-11-27 10:30:28
{"d":{"P01_modbus":{"T01":23},"ts":"2020-11-27T02:30:33.5..."}	2020-11-27 10:30:33
{"d":{"P01_modbus":{"T01":24,"T02":8},"ts":"2020-11-27T02:30:38.5..."}	2020-11-27 10:30:38
{"d":{"P01_modbus":{"T01":25},"ts":"2020-11-27T02:30:43.5..."}	2020-11-27 10:30:43
{"d":{"P01_modbus":{"T01":26},"ts":"2020-11-27T02:30:48.5..."}	2020-11-27 10:30:48
{"d":{"P01_modbus":{"T01":27,"T02":9},"ts":"2020-11-27T02:30:53.5..."}	2020-11-27 10:30:53
{"d":{"P01_modbus":{"T01":27,"T02":9,"T03":3},"ts":"2020-11-27T02:30:56.5..."}	2020-11-27 10:30:56
{"d":{"P01_modbus":{"T01":28},"ts":"2020-11-27T02:30:58.5..."}	2020-11-27 10:30:58
{"d":{"P01_modbus":{"T01":29},"ts":"2020-11-27T02:31:03.6..."}	2020-11-27 10:31:03
{"d":{"P01_modbus":{"T03":4},"ts":"2020-11-27T02:31:07.61..."}	2020-11-27 10:31:07
{"d":{"P01_modbus":{"T01":30,"T02":10},"ts":"2020-11-27T02:31:12.62..."}	2020-11-27 10:31:12

■ Pin Definition (in case of serial connection):

■ Reference: