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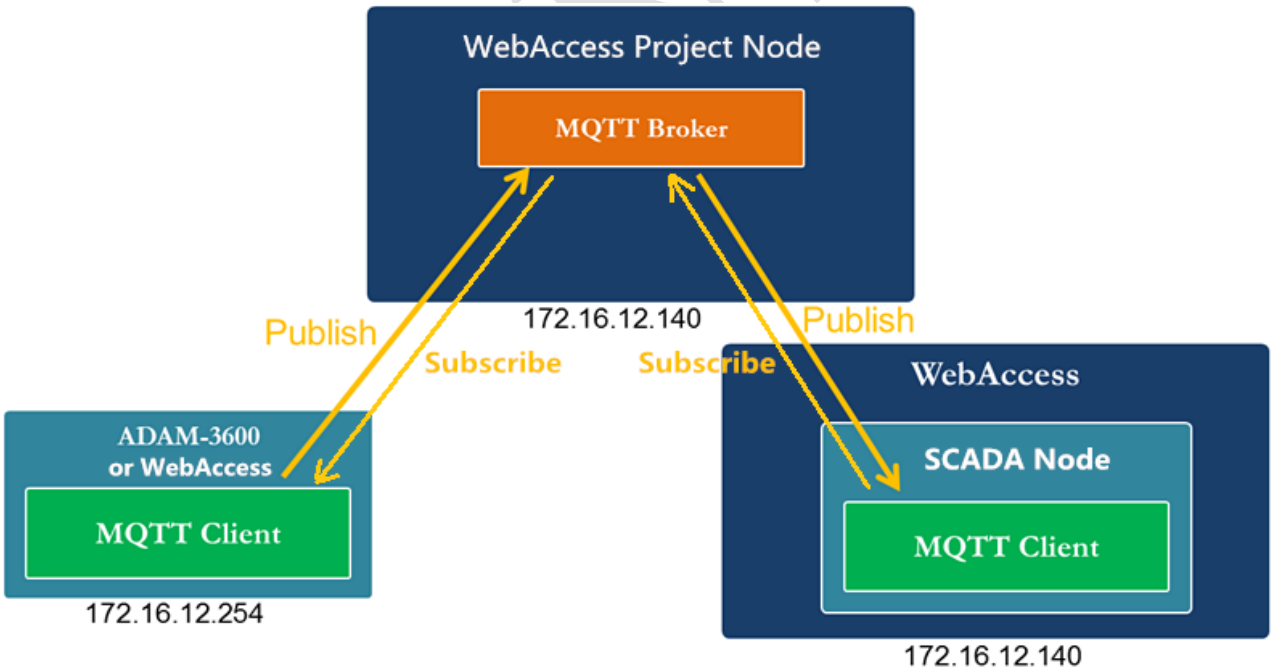
Category	■FAQ □SOP	Related OS	N/A
Abstract	How to set up ADAM-3600 or WebAccess MQTT connection with WebAccess Broker		
Keyword	WebAccess, Cloud, Upload, Broker		
Related Product	ADAM-3600		

■ Problem Description:

This document explains how to set up ADAM-3600 MQTT or WebAccess connection with WebAccess. After users configure Broker connection attributes, receive service attributes, tags to upload, upload conditions and other attributes, the data of the field device can be connected to the WebAccess via ADAM-3600 or WebAccess in the way of MQTT.

■ Answer:

The topology of TagLink or WebAccess MQTT Client connecting with WebAccess MQTT Broker is illustrated as below drawing.



The setup procedure can be divided into 3 parts, and each step would be instructed in the following pages.

The first part is WebAccess Broker setup, which would be explained in step 1 and 2.

The second part is WebAccess MQTT Client setup, which would be explained in step 3 to 8.

The third part is ADAM-3600 MQTT Client setup, which would be explained in step 9 to 10.

If you use WebAccess as a lower machine, you should do the following steps. The first part is WebAccess Broker setup, which would be explained in step 1 and 2.

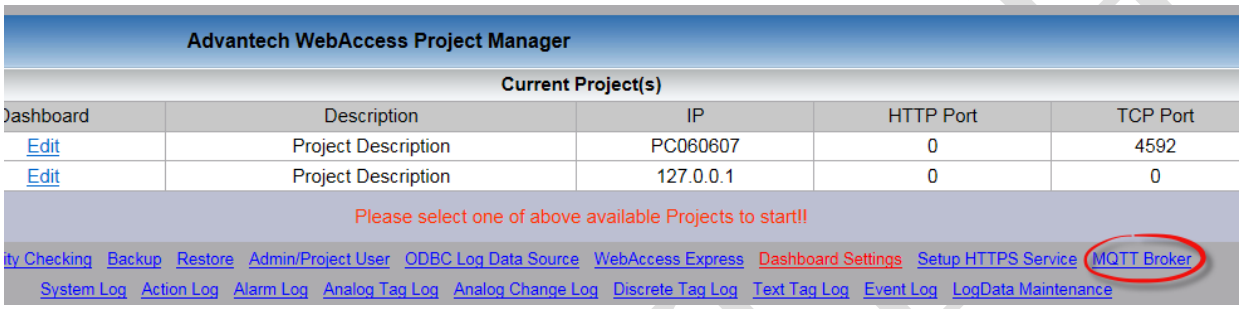
The second part is WebAccess MQTT Client (Use WebAccess as a gateway or device) setup, step 11 and step 12 need to be added in the normally collected project.

WebAccess MQTT Client which subscribing from Broker does not need to do any engineering configuration. After WebAccess MQTT Client (Data sending) is downloaded, it will automatically build a collection project in WebAccess MQTT Client.

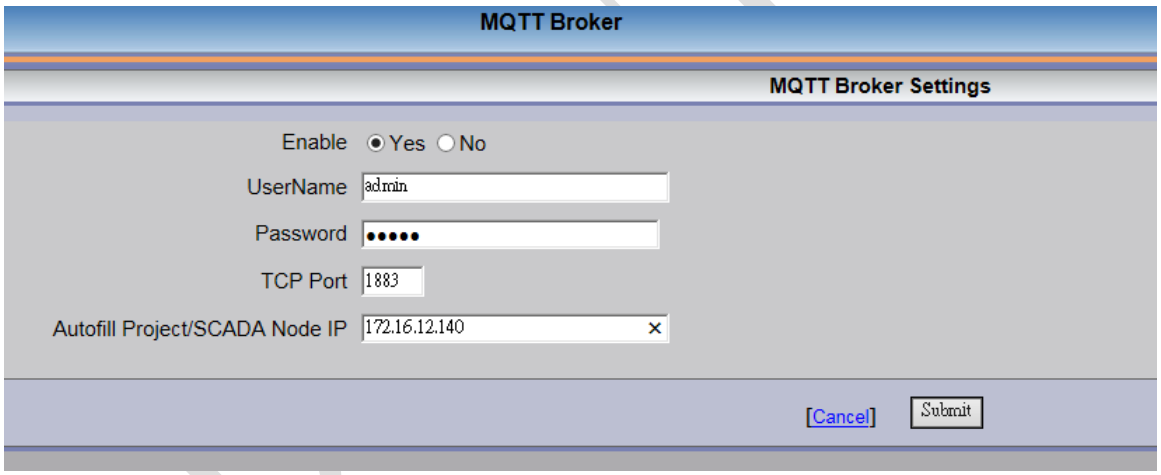
Prerequisite: Install **WebAccess 8.3 2017/12/15** and later version to use MQTT Broker.

WebAccess Broker Setup

1. Click MQTT Broker in the homepage of WebAccess.



2. Enable MQTT Broker with option "Yes".



2.1 Set up the "UserName" and "Password" defined by the user for the broker.

2.2 Set up port number for broker's "TCP Port". Usually use port 1883 as non-security TCP port.

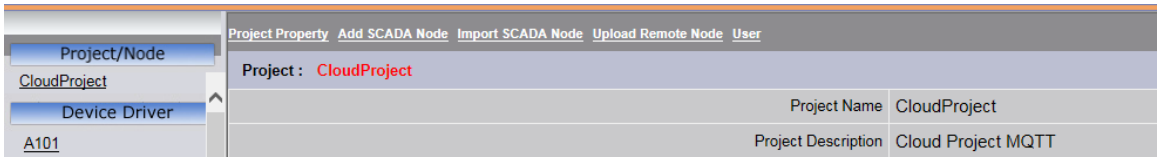
2.3 Fill in the "IP" (or domain name) of the server which would play as WebAccess Broker.

2.4 After clicking "Submit", the WebAccess MQTT Broker is supposed to start and ready to service.

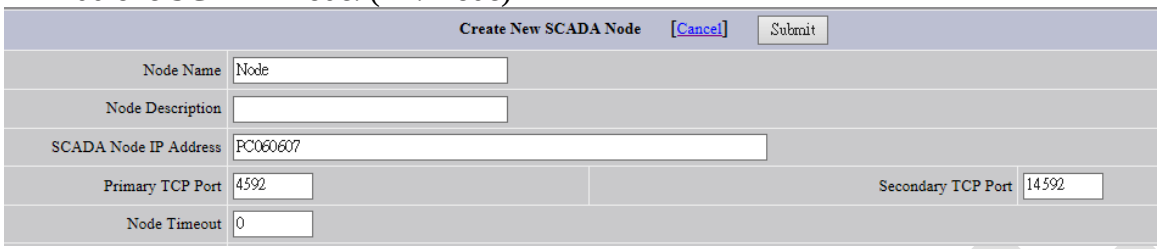
WebAccess MQTT Client Setup (SCADA node subscribes messages from broker)

The user can use the same machine to set up MQTT Broker and Client.

3. Choose one project in the WebAccess homepage. (Ex. CloudProject)



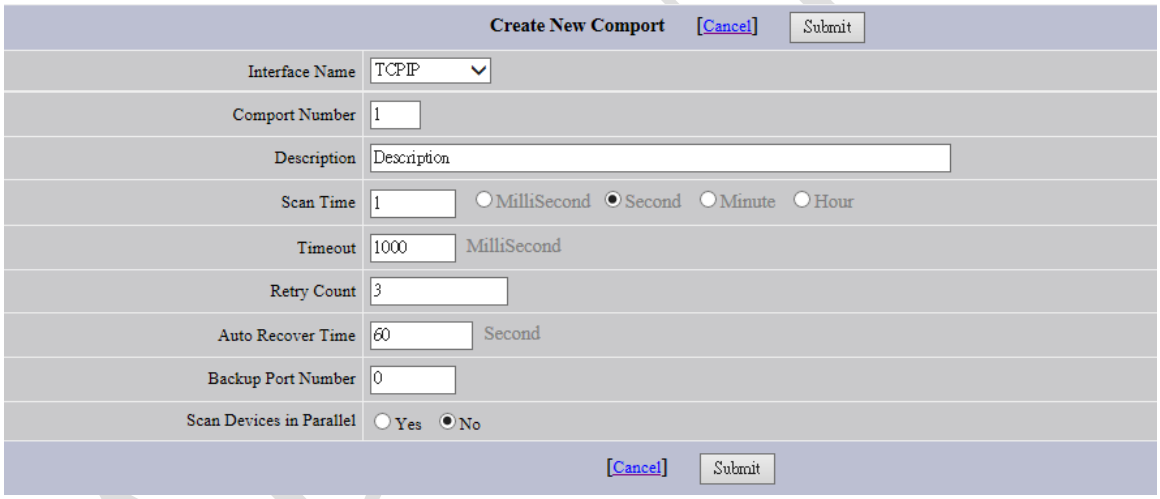
4. Add one SCADA Node. (Ex. Node)



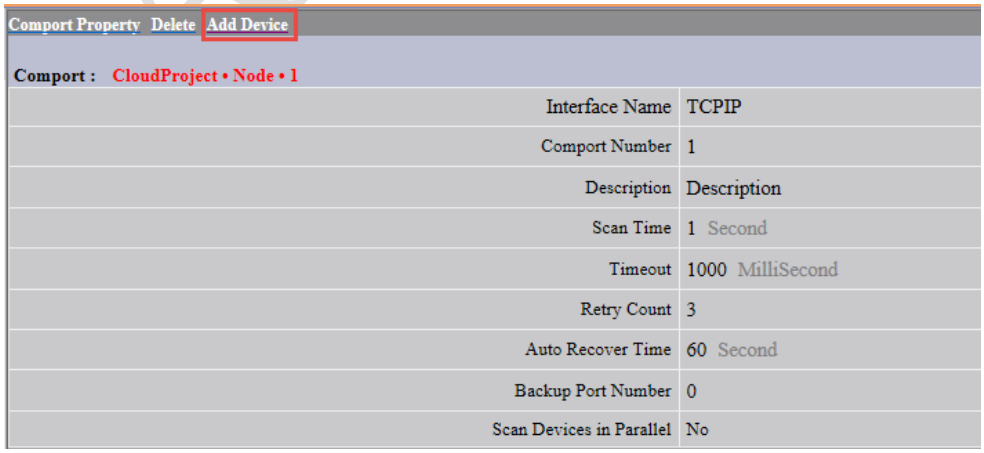
If the device supports MQTT client publishing with **WebAccess Plug&Play** function, the following steps may not be needed in WebAccess MQTT client. However, since ADAM-3600 cannot support **WebAccess Plug&Play** in this period of time, we need to set up the device and tags manually in step 6 to 9.

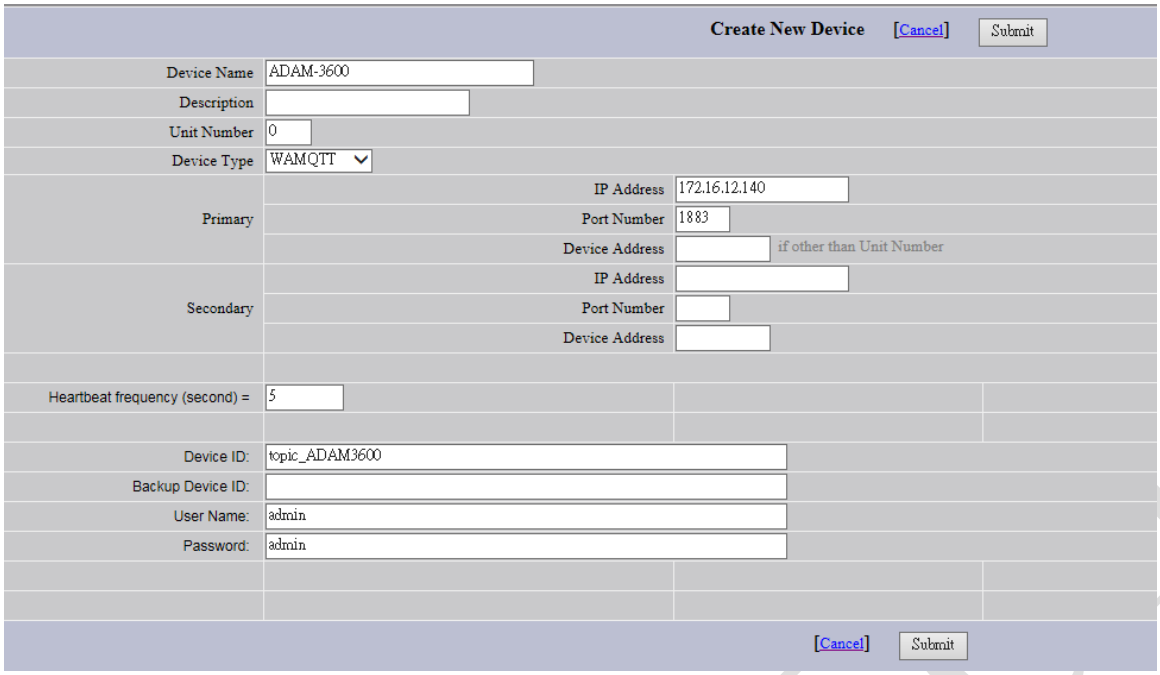
In other words, **WebAccess Plug&Play** allows users no need to set up device and tags and would generate corresponding device and tags if it receives MQTT packets from the subscribed broker.

5. Add New Comport as TCPIP Interface.



6. Add Device with WAMQTT Device Type.





Device Name: It's for recognition different devices in WebAccess.

IP address: Fill in the IP of Broker.

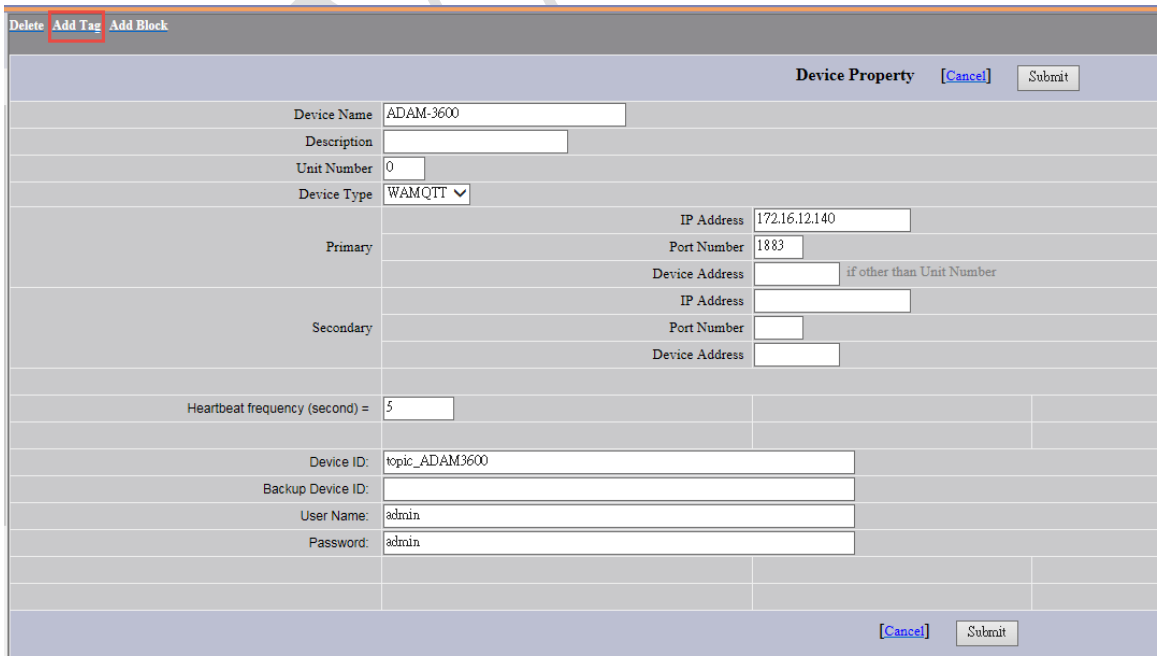
Port Number: Fill in the port number of Broker.

Heartbeat frequency (second): The device send heart beat message to the Broker with this period. After several times checking the communication status without heartbeat from the device, the Broker will view this device as disconnected.

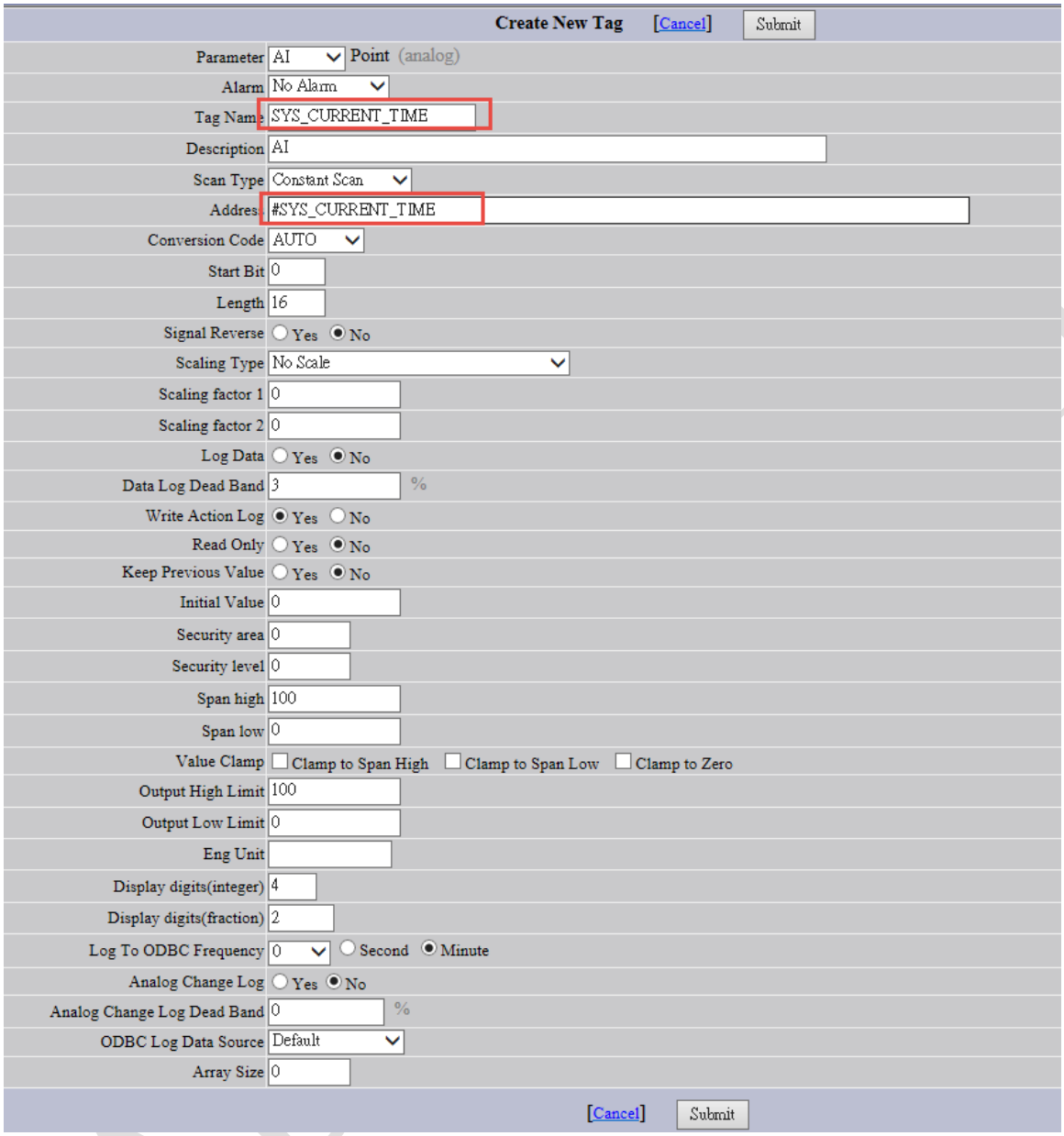
Device ID: Set the "Device ID" same as in TagLink project, which indicates the name of uploading topic.

Username and password: Broker's username and password.

7. Add Tag in the device.



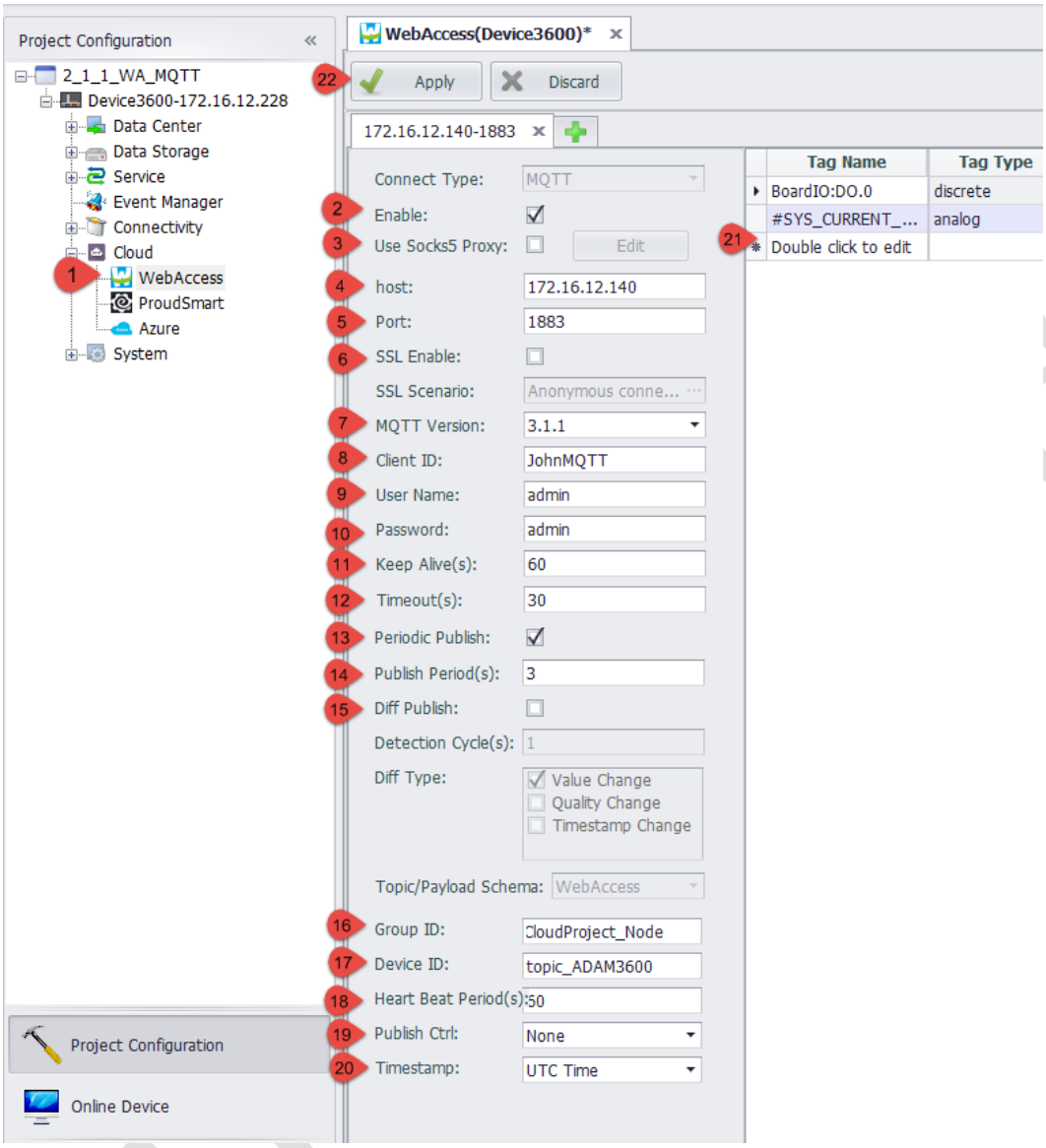
8. Create New Tag with the monitored Tag Name and Address in the device. (The address is the name of tag in TagLink).



After download and run the Node, you may receive the tag value if the device publishes to the WebAccess Broker.

ADAM-3600 MQTT Client setup

9. Set up TagLink project for ADAM-3600, which is one MQTT client.



9.1 Choose “WebAccess” in the categories of cloud service.

9.2 In TagLink Cloud setting, enable WebAccess Cloud.

9.3 Leave it disabled as default if you don’t use SOCKS5 proxy server. If user wants to enable it, click the Enable selection box and click the “Edit” button to set the SOCKS server information in the pop-up box, including the server IP address, port number, user name and password information.

9.4 *“host”:* Fill the Broker’s IP or domain name.

9.5 *“Port”:* Set the port number the same as WebAccess Broker’s port.

9.6 Choose whether to enable SSL. Connection does not enable SSL secure connection by default. If click the Enable selection box to enable SSL, user can choose three authentication methods: Anonymous Connection, Server Authentication, and Mutual Authentication. You can leave it

unchecked as default if you don't need authentication. Use default Anonymous connection if the cloud and the client do not require certificate authentication.

9.7 Select the MQTT version number consistent with the cloud. For WebAccess 8.3 2017/12/15, which is MQTT 3.1.1 by default.

9.8 Fill in one Client ID following the spec of the broker. Randomly generated name is fine. MQTT 3.1.1 supports Anonymous Connection, so we can leave it empty as well.

9.9 "*Username*": Fill in WebAccess Broker's user name.

9.10 *"Password"*: Fill in WebAccess Broker's password.

9.11 "*Keep Alive*": The client sends heartbeat messages (PING) to the broker with this timeframe to keep the connection alive with the broker.

9.12 "*Timeout*": The maximum interval in seconds for the client to establish connection with the broker. If the client has not received a response over time after sending a message to the broker, the client will interrupt the connection initiatively.

9.13 "*Periodic Publish*" is one option of uploading conditions. The client can choose to upload the tag's information regularly.

9.14 *"Publish Period"*: Set up the interval to publish data. For demonstration, check Periodic Publish and set Publish Period as 3 seconds.

9.15 *"Diff Publish"* is another option of uploading conditions. The client can choose to upload information when the tag changes. It checks the Tag status (value, communication quality, and timestamp) every Detection Cycle. Two uploading conditions can be selected at the same time.

9.16 *"Group ID"*: The project name added bottom line with the node name in the WebAccess MQTT Client. (Ex. MyProject_MySCADANode).

9.17 *"Device ID"*: Fill in the device name, which is the topic that WebAccess MQTT Client would subscribe in as "Device ID" in WebAccess device property. (Ex. Device3600).

9.18 *"Heart Beat Period"*: The interval of TagLink sends heart beat message to WebAccess MQTT Client.

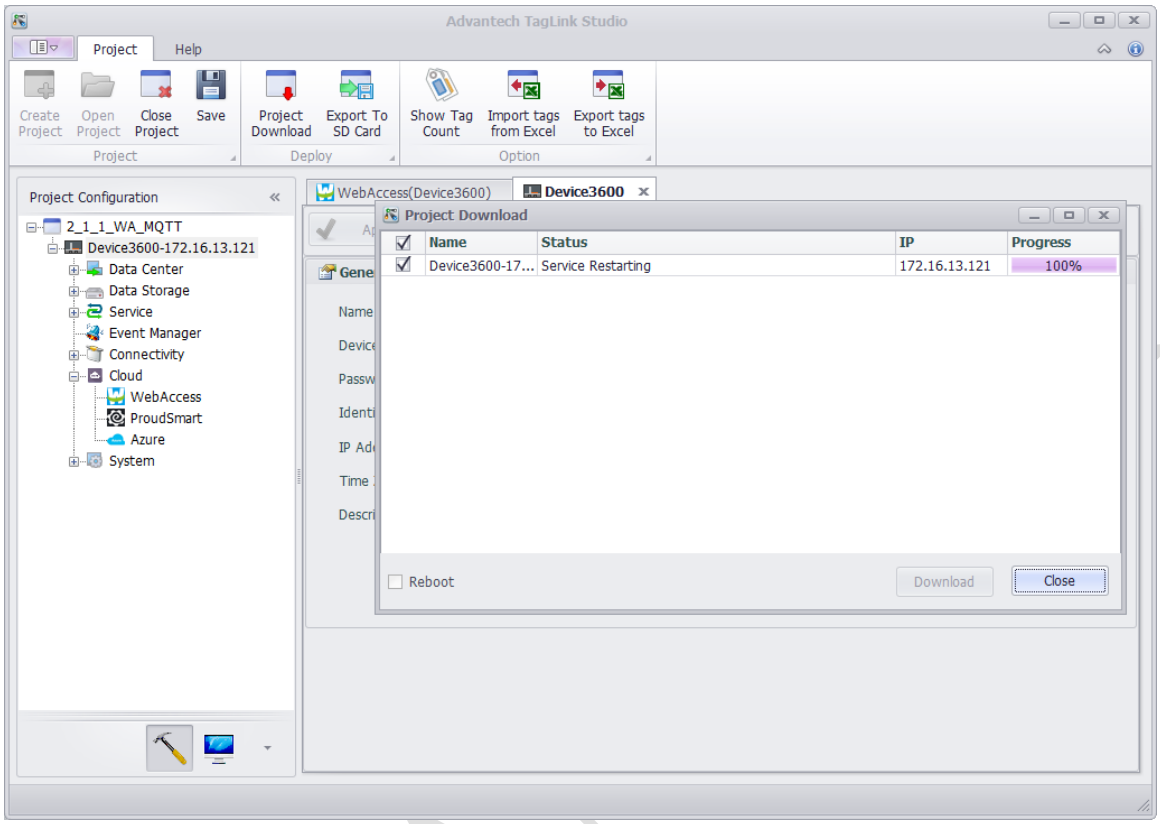
9.19 "*Publish Ctrl*": If enable "Publish Ctrl", WebAccess Node can control TagLink device to publish or not by using "DON/DOF" command. When WebAccess Node starts, it will send DON to broker, then ADAM-3600 can subscribe it to start publishing. When WebAccess Node stops, it will send DOF to broker, then ADAM-3600 can subscribe it to stop publishing.

9.20 *"Timestamp"*: Choose the published message contains timestamp with UTC or local time.

9.21 You may create some tags for observation. In Cloud setting, add Tag by Double click the column and select the tag you created.

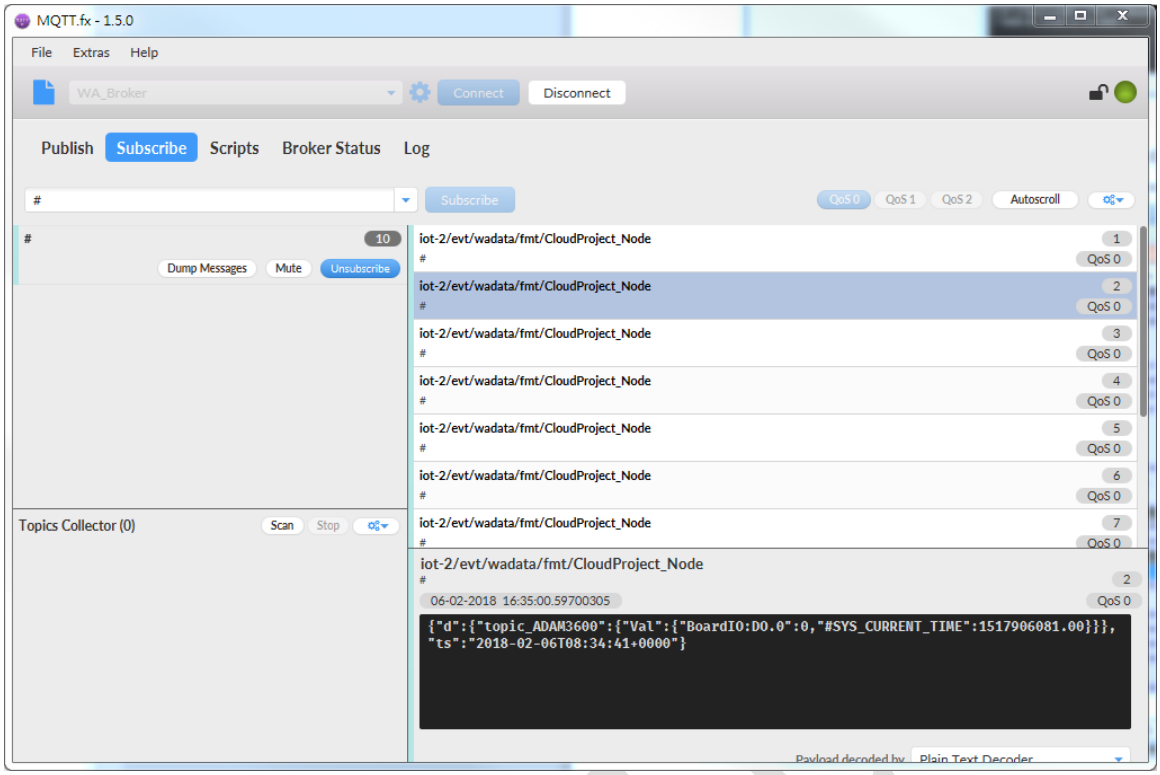
9.22 Click **Apply** for saving the setting.

10. Download the project to your ADAM-3600 device. After downloading, the MQTT service would restart automatically.

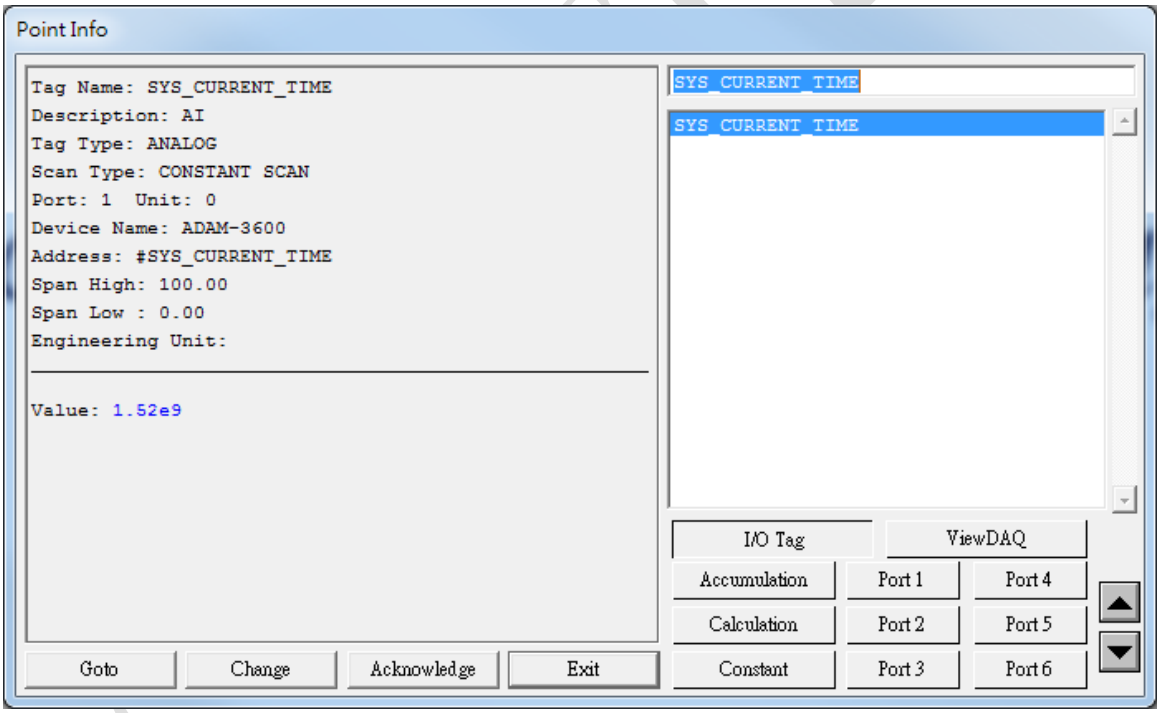


After finishing above settings, the ADAM-3600 MQTT Client may publish to WebAccess Broker, and you may monitor it on another WebAccess Node as MQTT Client.

You may also use other 3rd party MQTT client software (ex. MQTT-fx) to subscribe the WebAccess MQTT broker and check the published result of ADAM-3600.

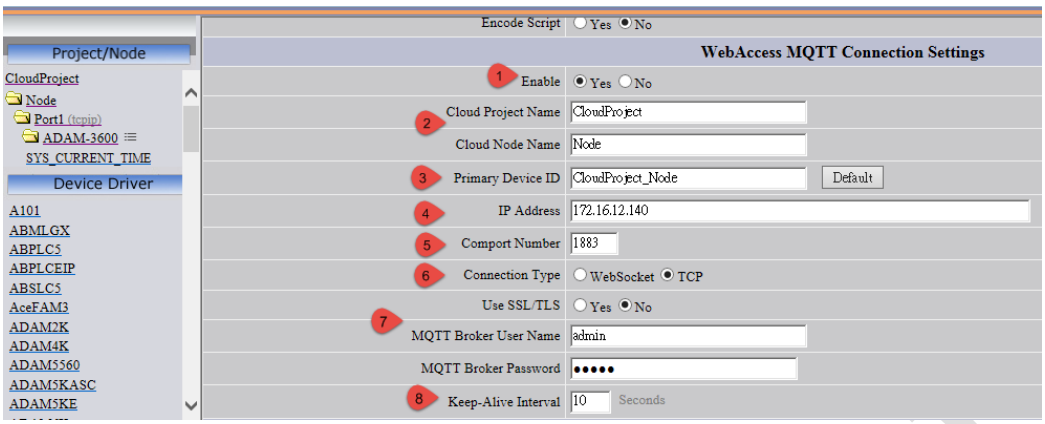


You may also view the upload result in ViewDAQ of WebAccess.



WebAccess MQTT Client Setup (Upload messages to Broker)

11. In *Node Property*, set up WebAccess MQTT Connection Settings.



11.1 Enable MQTT Connection function by clicking “Yes” in “Enable.”

11.2 Set up the “Cloud Project Name” and “Cloud Node Name”. (Ex. CloudProject/ Node)

11.3 Set up the “Primary Device ID” by clicking Default button.

11.4 Fill in the “IP” (or domain name) of the server which would play as WebAccess Broker.

11.5 Fill in the “Comport Number” following the port number of broker.

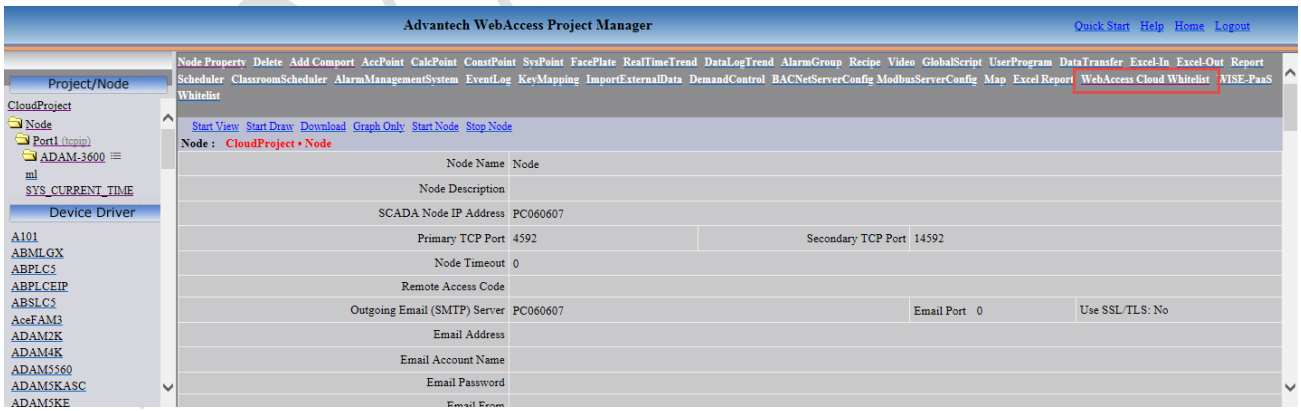
11.6 If the WebAccess MQTT Client is installed in Windows 7, WebAccess 8.3.0 can only support TCP “Connection Type” in this period of time.

11.7 Follow MQTT Broker settings to set up “Use SSL/TLS”, “MQTT Broker User Name”, and “MQTT Broker Password.”

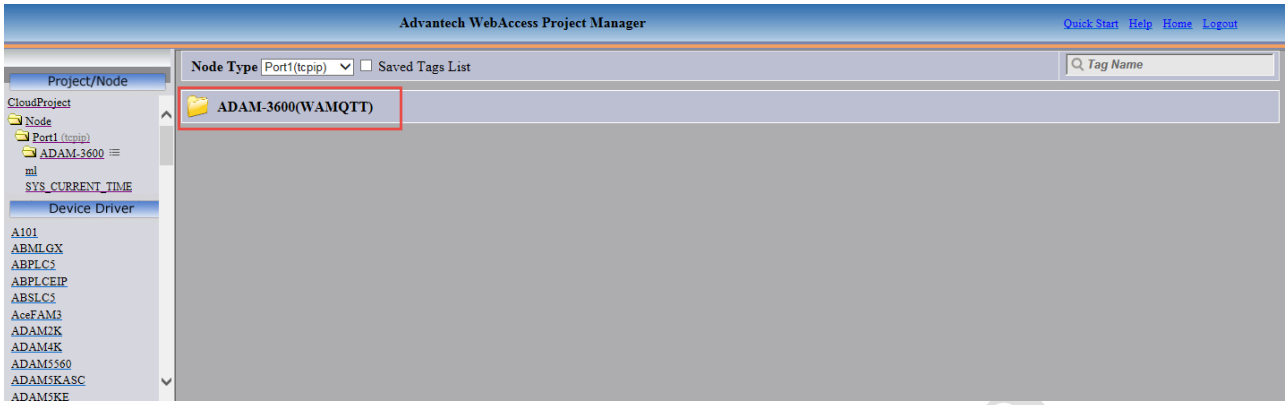
11.8 “Keep Alive” is defined as the maximum time interval in seconds that a cloud broker receives messages from a client and stay connection. The client will send heartbeat messages to the cloud in this timeframe. User may leave the default 10 seconds for setup.

11.9 Clicking “Submit” to finish the setup of Node Property.

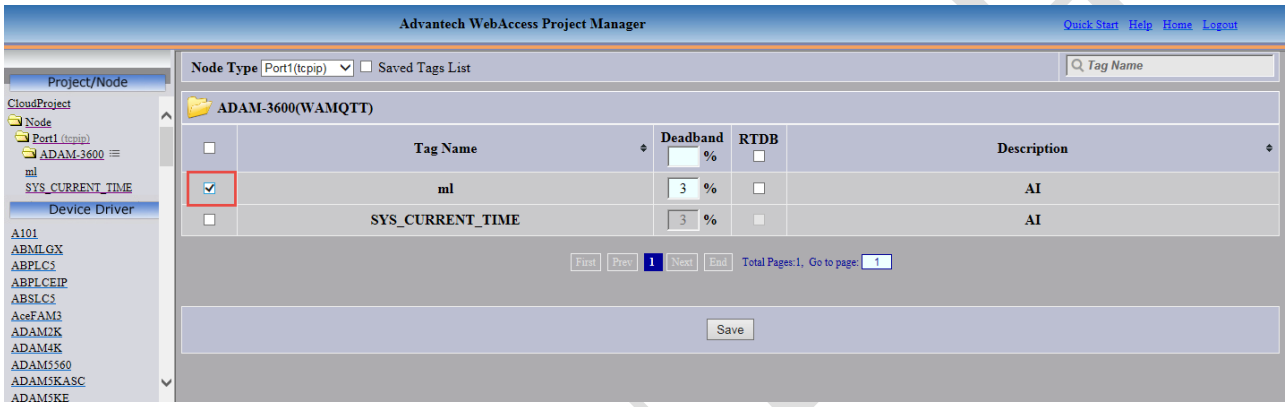
12. Select the tags that need to be uploaded to WebAccess MQTT Broker in the *WebAccess Cloud Whitelist*.



Click the directory of the device.

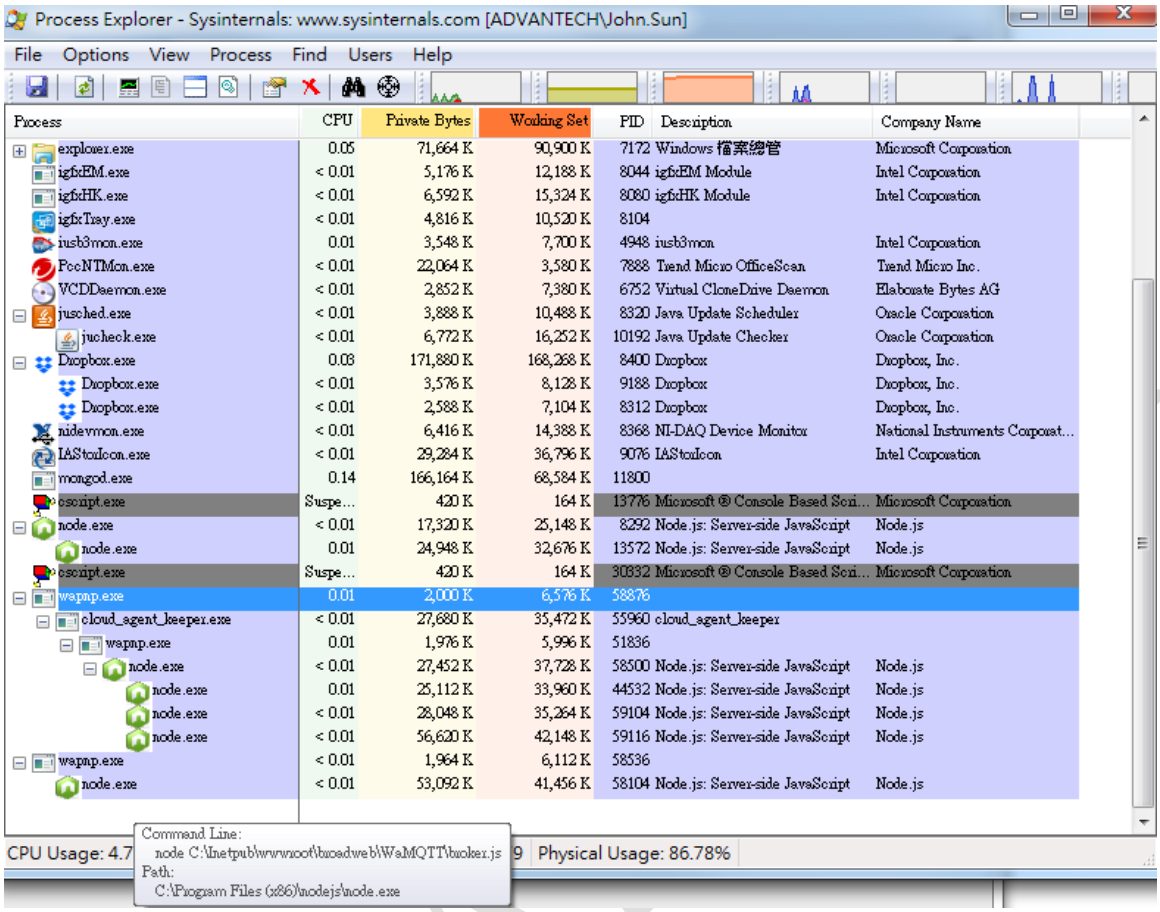


Enable the tag you want to upload.



[Trouble shooting]

After enable WebAccess MQTT Broker, if you want to check whether Broker is starting or not, you may use tool such as “Process Explorer” to check the proecess of WaMQTT Broker.



If the MQTT Broker does not start successfully, cloud_agent_keeper.exe and related node.exe would not appear.

During installing WebAccess 8.3, Node.js 6.10.3 will be installed.

If you have installed higher version of Node.js (ex. Version 8.9.1) may be not compatible to WebAccess broker. You may need to remove Node.js version above 6.10.3 before installing WebAccess 8.3.

The method to check your installed Node.js is using command “node -v” in command line.