

Advantech AE Technical Share Document

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Category	■FAQ □SOP	Related OS	N/A
Abstract	How to set the authentication function of ADAM MQTT?		
Keyword	ADAM-60XX, ADAM-62XX, MQTT, authentication, username, password		
Related Product	ADAM-6217-B, ADAM-6017-D ADAM-6050-D, ADAM-6051-D, ADAM-6052-D, ADAM-6060-D, ADAM-6066-D ADAM-6250-B, ADAM-6251-B ,ADAM-6256-B, ADAM-6260-B, ADAM-6266-B		

■ **Problem Description:**

This document explains how to set the authentication function of ADAM MQTT for connecting to the broker that requires username and password for verification.

■ **Answer:**

Below is the support table of ADAM MQTT authentication function. User need to check module HW version and upgrade to certain FW version for setting the authentication of MQTT.

DIO Model	FW version	AIO Model	FW version
ADAM-6050/51/52/60/66-D	After v6.02 B01	ADAM-6017-D	After v6.02 B00
ADAM-6250/51/56/60/66-B	After v6.02 B01	ADAM-6217-B	After v6.02 B01

After checking the HW, FW, Utility version (after 2.05.11B17) all support MQTT authentication function, we can start the DEMO. Following are the steps by steps (with ADAM-6250) to test the MQTT function with username/password:

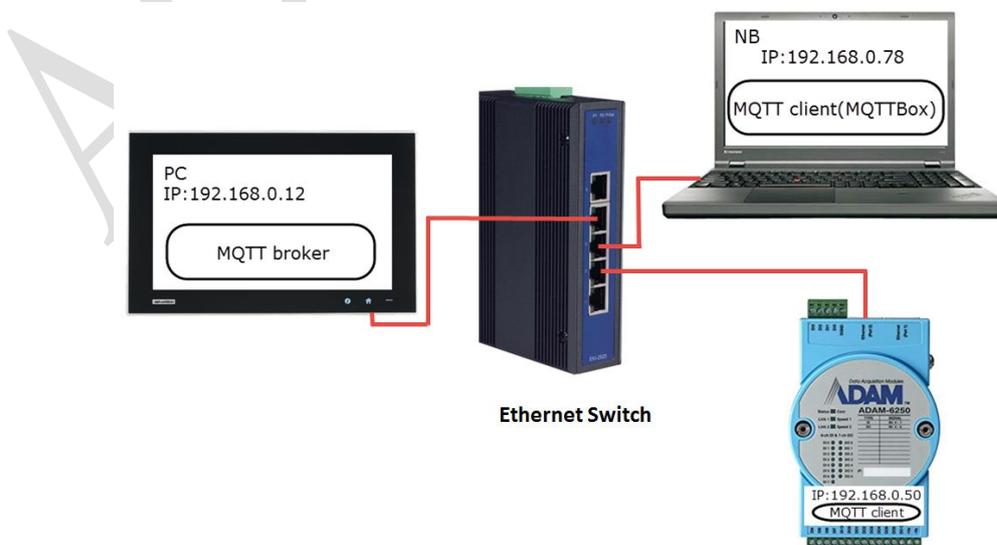


Figure1. Application structure

1. Build up a mosquitto broker with username/password authentication and run it.

First, in order to test the username/password function, we have to build up a broker which can only be accessed with correct username/password. We can use Webaccess or Mosquitto to build up a MQTT broker with authentication. In this example I use Mosquitto. (For the Webaccess MQTT broker setting, you can refer to the end of this document.)

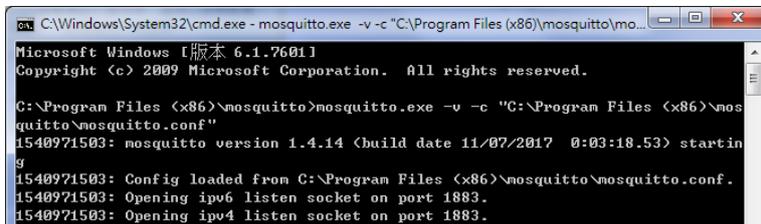


Figure2. Mosquitto broker (username:jjj/password:123) which run on IP:192.168.0.12.

2. Use Adam/Apax .NET Utility to setup the MQTT setting.

We have to setup the ADAM module. There are several parameters we have to fill in (Figure3). After pressing the “Apply” button, we can see the module successfully connect to the broker not only on the broker page (Figure4) but also in the wireshark. (We can see the module connect to the broker with correct username/password in Figure5.)

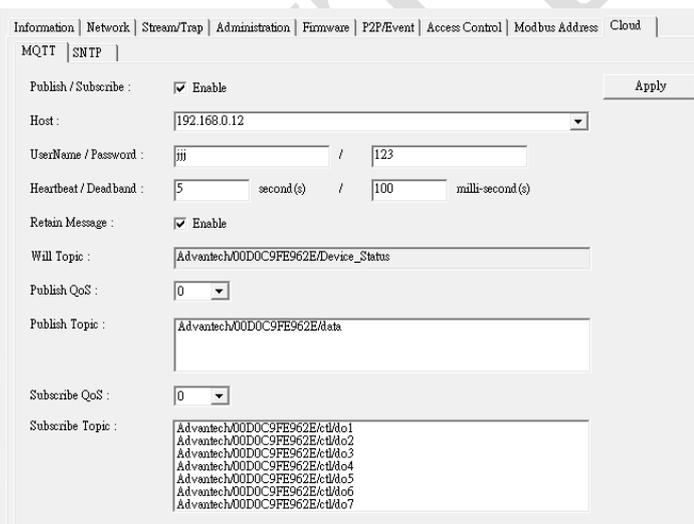


Figure3. Utility setting (under Cloud/MQTT tab)

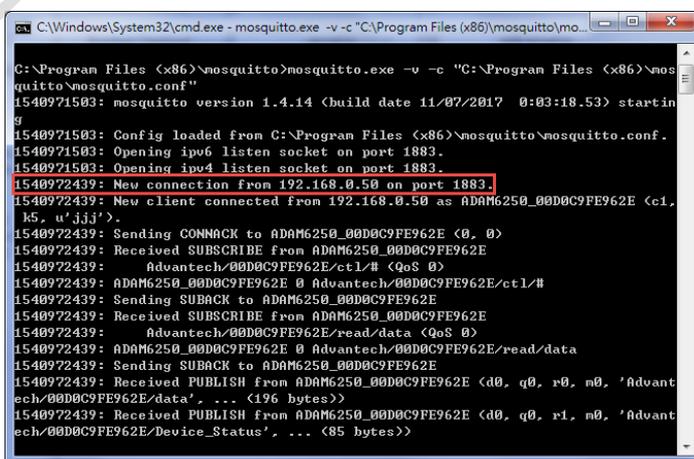


Figure4. ADAM-6250 connects to the broker.

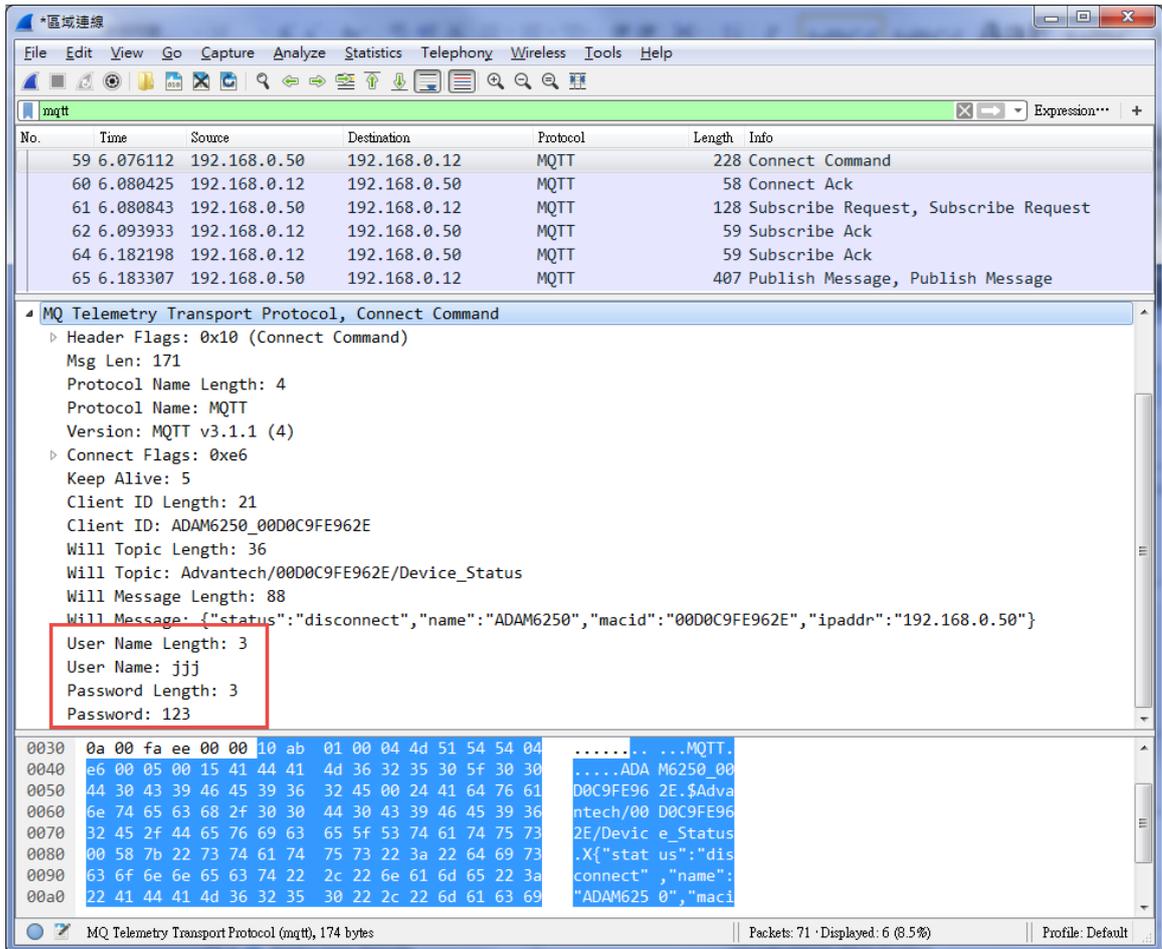


Figure5. Connect packet

3. Use a 3rd party MQTT client (MQTTBox) to get the DI status.

In Figure6, we have to setup a MQTT client for testing the function. In Figure7, enter the right Topic and press Subscribe button, you can get the IO data. In Figure8, enter the right Topic and payload then press Publish button, you can set the DO. You can also observe the DOO change in the right hand side (Subscribe block) of this figure.

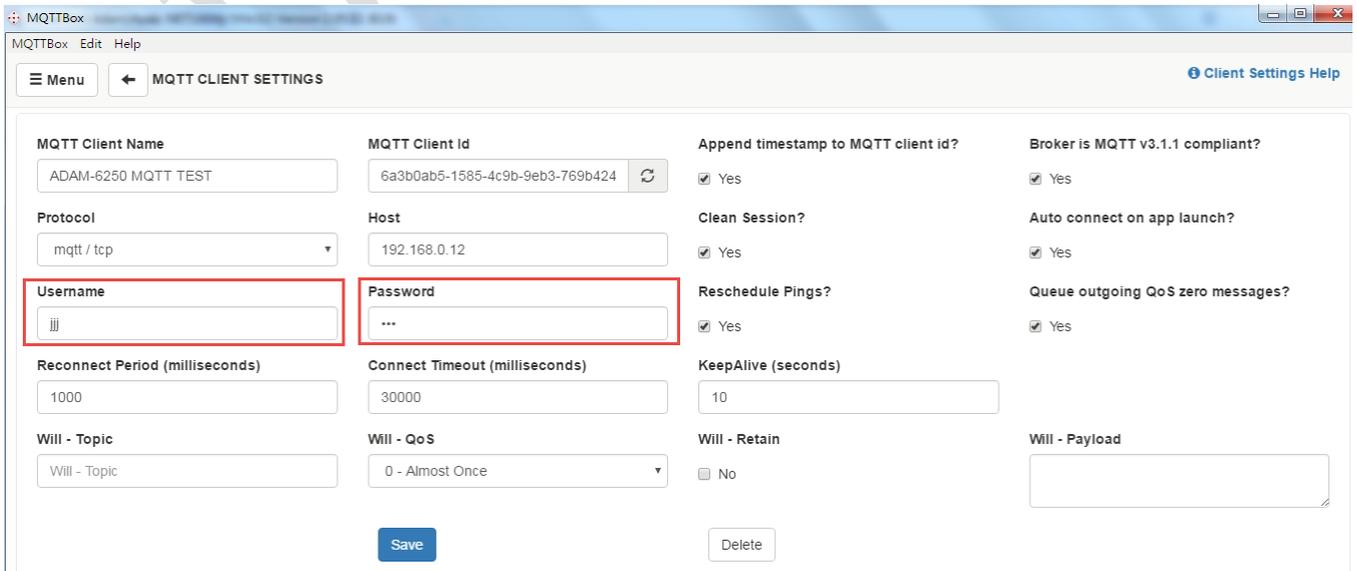


Figure6. MQTTBox setting page

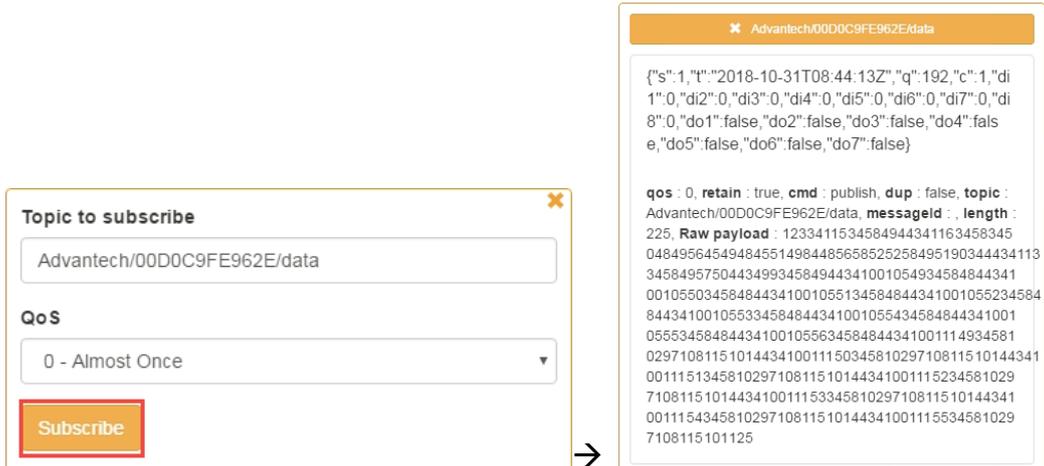


Figure7. Subscribe IO data

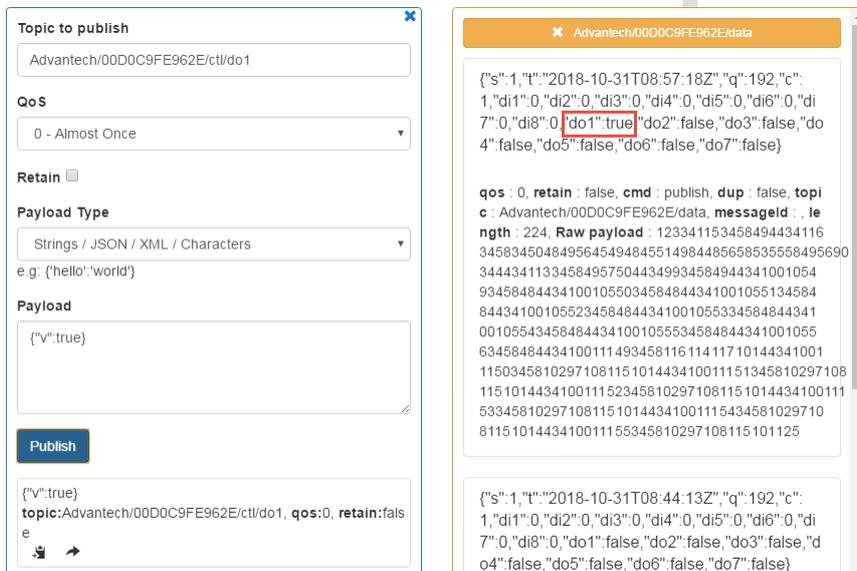


Figure8. Publish DO data

Remarks:

- Utility only allows user enter max 20 characters for username and password. However, module can support 49 characters for username and 99 characters for password for the MQTT authentication function. If users need to set longer characters for both username and password, they can use ASCII command to configure this setting.

<pre>%aaSETMQTTUNxx...x</pre>	<p>Set MQTT user name aa: always 01 xx...x: user name, if set null module will disable the user-name and password function.</p>	<p>Return: >01 Error: ?01</p>
<pre>%aaSETMQTTPWxx...x</pre>	<p>Set MQTT password aa: always 01 xx...x: password, if set null module will disable the user-name and password function.</p>	<p>Return: >01 Error: ?01</p>

Figure9. ASCII command for setting the username/password

2. Here is a packet about the MQTT client connect the broker with wrong username/password.

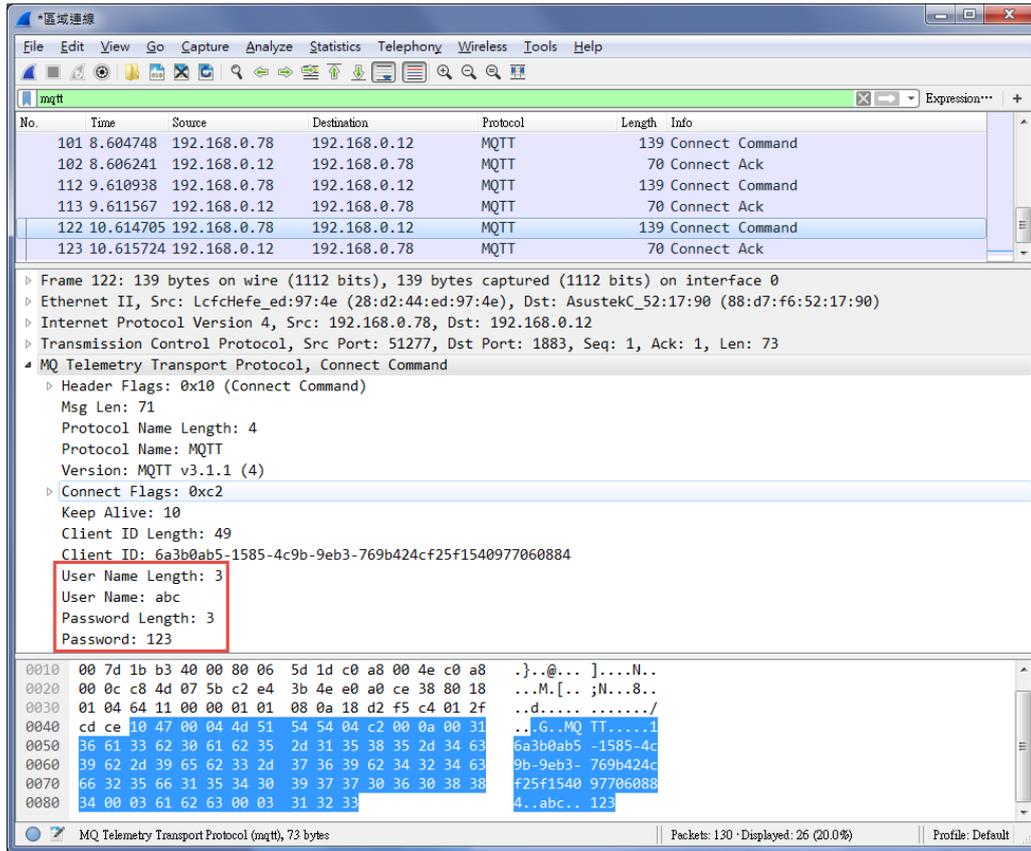


Figure10. Client connects to broker with incorrect username/password.

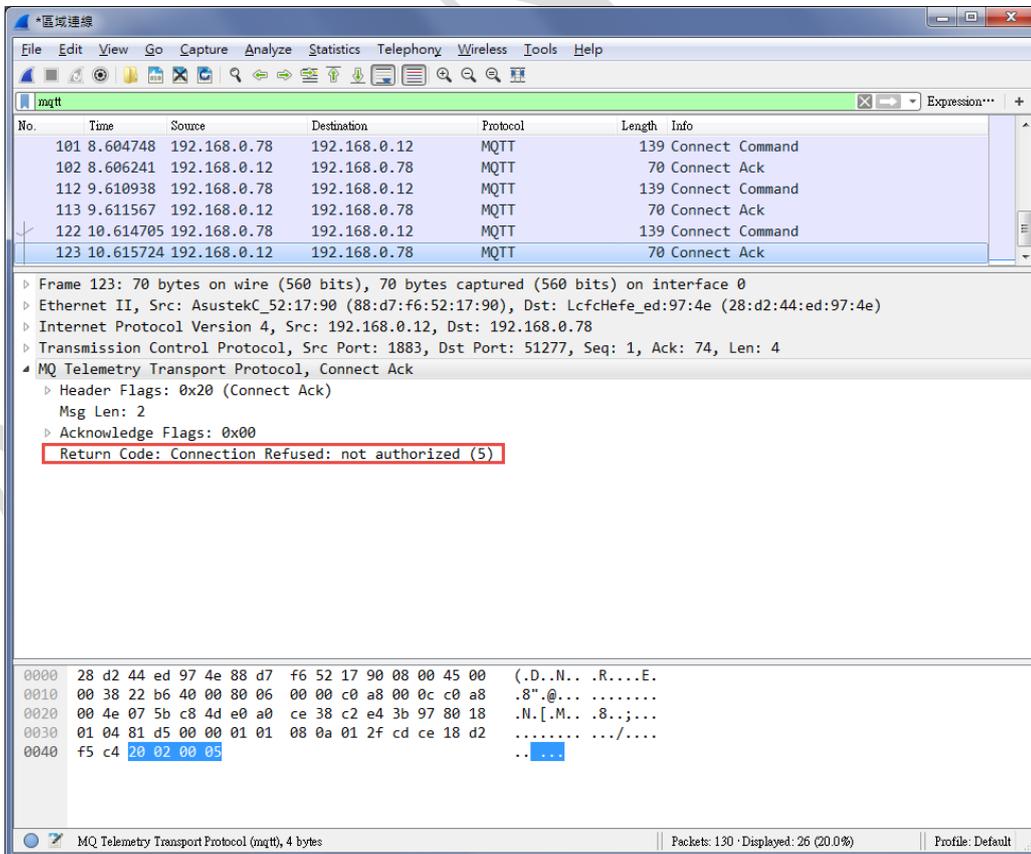


Figure11. Broker responses with a “connect act” with “not authorized”.

3. Webaccess MQTT broker setup SOP (After v8.3.3)
 - a. Open the project manager and click the MQTT Broker.

The screenshot shows the 'Advantech WebAccess Project Manager' interface. At the top, there is a navigation bar with 'Quick Start', 'Help', and 'Logout'. Below this is a table titled 'Current Project(s)' with columns for Project Name, Project, Dashboard, Description, IP, HTTP Port, TCP Port, Timeout, Update, and Delete. The table lists three projects: 'CloudProject', 'demo', and 'WISE2410'. Below the table, there is a red message: 'Please select one of above available Projects to start!!'. A navigation menu includes 'Integrity Checking', 'Backup', 'Restore', 'Admin/Project User', 'ODBC Log Data Source', 'WebAccess Express', 'Dashboard Settings', 'Setup HTTPS Service', and 'MQTT Broker' (highlighted with a red box). Below the menu is the 'Project Configuration' section, specifically the 'Create New Project' form. The form includes fields for Project Name, Project Description, Project Node IP Address (pre-filled with 'PC020609'), Project Node HTTP Port (0), Project Primary TCP Port (4592), Project Timeout (0), Remote Access Code, and Retype Remote Access Code. There is also a radio button for 'Log Changes to System Log' with 'Yes' selected. A 'Submit for New Project' button is at the bottom.

- b. Enter the username/password you want and press “Submit” button.

The screenshot shows the 'MQTT Broker Settings' configuration page. At the top, there is a header 'MQTT Broker' and a sub-header 'MQTT Broker Settings'. Below this is the 'Enable' section with radio buttons for 'Yes' (selected) and 'No'. The 'UserName' field is pre-filled with 'admin' and the 'Password' field is filled with '.....'. A 'Show Password' checkbox is present and unchecked. Below these are fields for 'TCP Port' (1883), 'TLS Port' (8883), 'Websocket Port' (51328), and 'Websocket TLS Port' (51329). At the bottom, there is a 'Project Node Public IP' field. A navigation bar at the bottom right contains '[Cancel]' and 'Submit' buttons.

- c. Done!