

Advantech AE Technical Share Document

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Category	■FAQ □SOP	Related OS	N/A
Abstract	How to manipulate MQTT function_username and password		
Keyword	ADAM-6000, ADAM-6200, MQTT, Username, Password		
Related Product	ADAM-6000 series, ADAM-6200 series		

■ Problem Description:

This document will use an example to illustrate how to utilize Username and Password function within ADAM-6000/6200 modules.

■ Solution:

Install Mosquitto broker in local memory.

Download link: <https://mosquitto.org/download/>

Step1:

Open up the folder where you stored Mosquitto broker and make sure there's one .exe file called **mosquitto_passwd**.

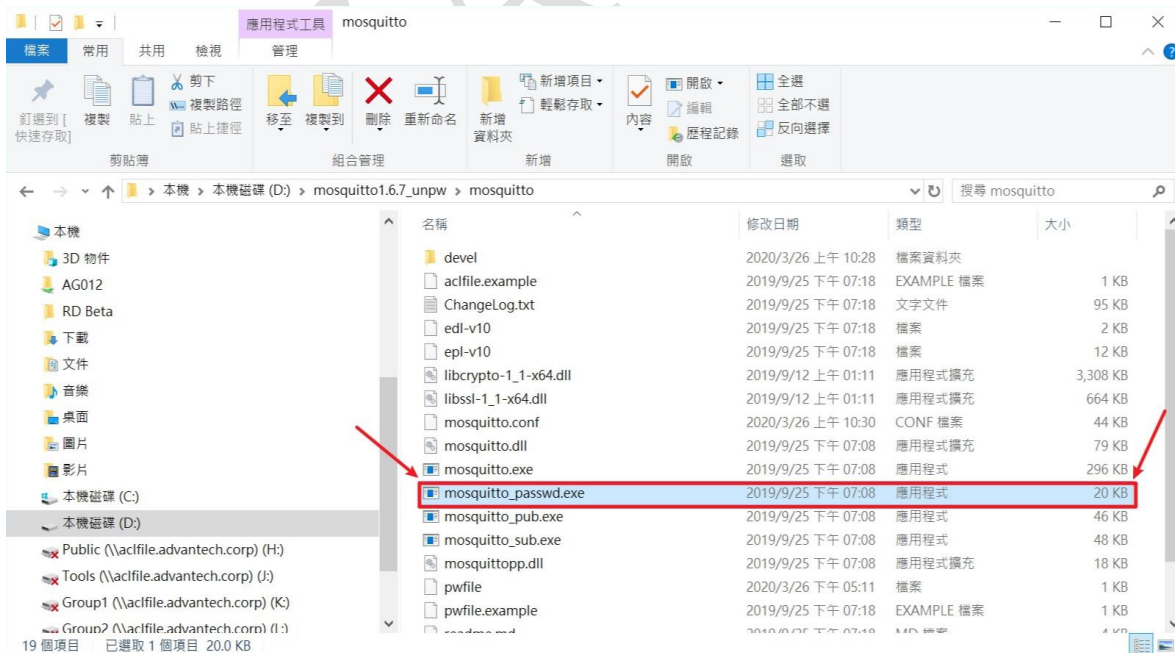


Fig.1 Check mosquitto_passwd.exe

Step2:

Open up commander prompt and go to the directory where Mosquitto broker is stored to execute **mosquitto_passwd.exe**.

Please type below command,

mosquitto_passwd.exe -c "Directory where you want to place the pwfile" Username and commander will ask you to type password twice.

Then, you will find the pwfile generated by this **mosquitto_passwd.exe**.

(Notice: the password you type will not be displayed due to some sort of protection.)

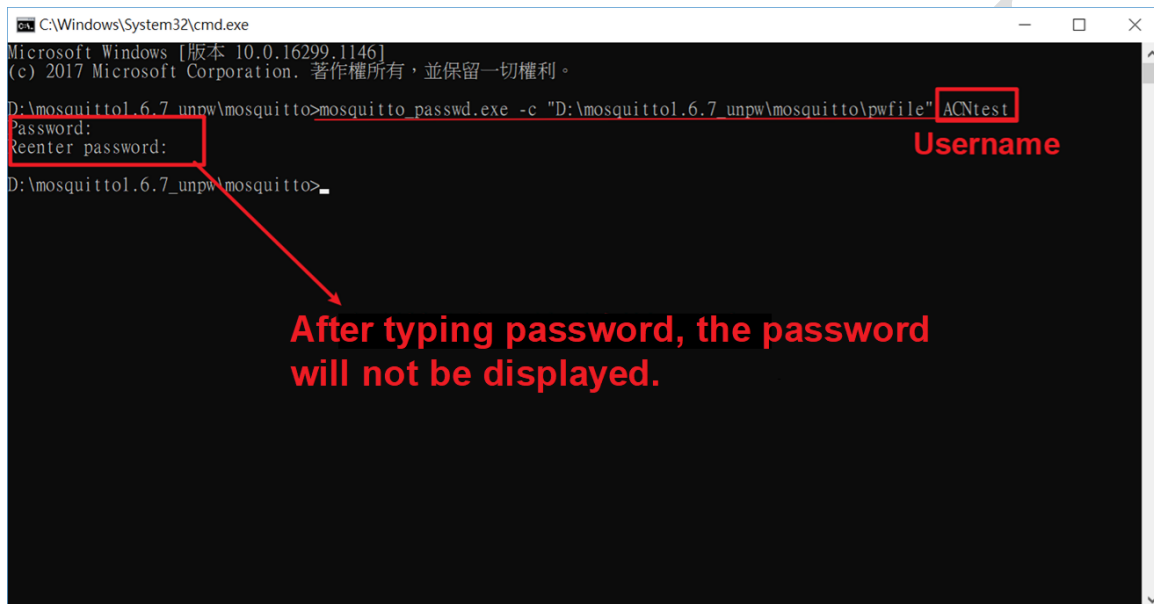


Fig.2 Choose connection type and fill in username and password

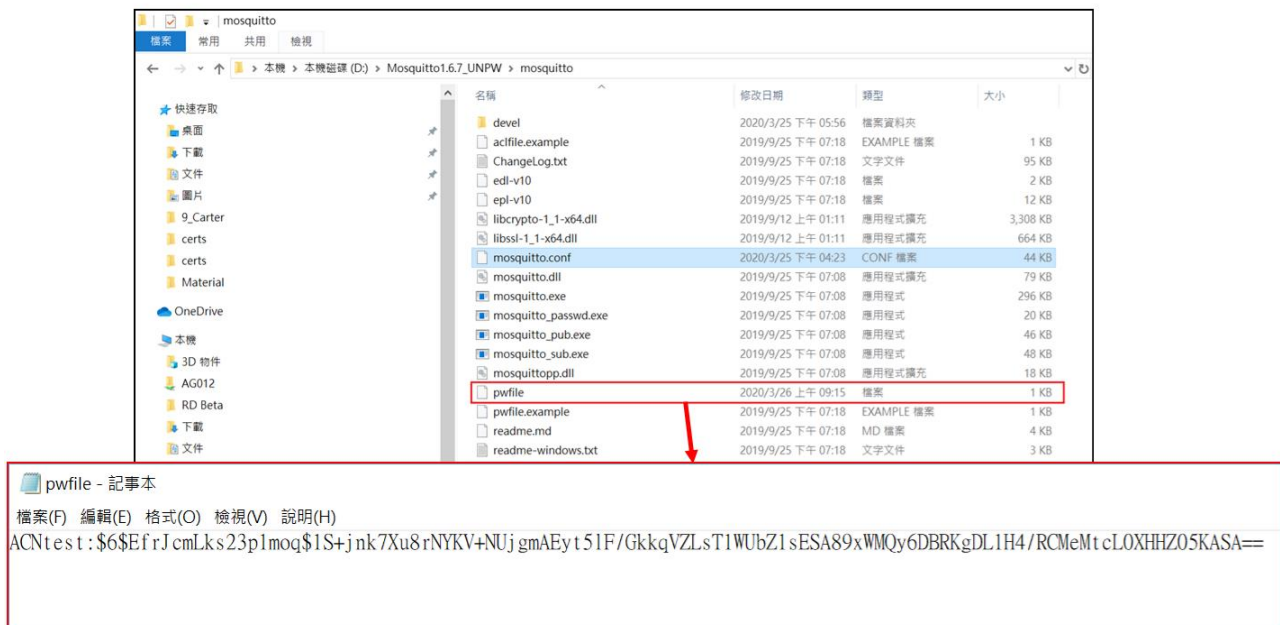


Fig.3 Make sure **pwfile** is generated

Step3:

Open up **mosquitto.config** and modify the content as below figures,

```

656 # -----
657 # Default authentication and topic access control
658 # -----
659 #
660 # Control access to the broker using a password file. This file can be
661 # generated using the mosquitto_passwd utility. If TLS support is not compiled
662 # into mosquitto (it is recommended that TLS support should be included) then
663 # plain text passwords are used, in which case the file should be a text file
664 # with lines in the format:
665 # username:password
666 # The password (and colon) may be omitted if desired, although this
667 # offers very little in the way of security.
668 #
669 # See the TLS client require_certificate and use_identity_as_username options
670 # for alternative authentication options. If an auth_plugin is used as well as
671 # password_file, the auth_plugin check will be made first.
672 password_file D:\Mosquitto1.6.7_UNPW\mosquitto\pwfile
673 #
674 # Access may also be controlled using a pre-shared-key file. This requires
675 # TLS-PSK support and a listener configured to use it. The file should be text
676 # lines in the format:
677 # identity:key
678 # The key should be in hexadecimal format without a leading "0x".
679 # If an auth_plugin is used as well, the auth_plugin check will be made first.
680 #psk_file
681 #

```

Fig.4 Modify the password_file directory

```

634 # -----
635 # Security
636 # -----
637 #
638 # If set, only clients that have a matching prefix on their
639 # clientid will be allowed to connect to the broker. By default,
640 # all clients may connect.
641 # For example, setting "secure-" here would mean a client "secure-
642 # client" could connect but another with clientid "mqtt" couldn't.
643 #clientid_prefixes
644 #
645 # Boolean value that determines whether clients that connect
646 # without providing a username are allowed to connect. If set to
647 # false then a password file should be created (see the
648 # password_file option) to control authenticated client access.
649 #
650 # Defaults to true if no other security options are set. If 'password_file' or
651 # 'psk_file' is set, or if an authentication plugin is loaded which implements
652 # username/password or TLS-PSK checks, then 'allow_anonymous' defaults to
653 # false.
654 #
655 allow_anonymous false
656 #
657 # -----
658 # Default authentication and topic access control
659 # -----

```

Fig.5 Change allow_anonymous to false

Step4:

Open up Adam/Apax .NET Utility, and set up username and password you've set in **pwfile**.

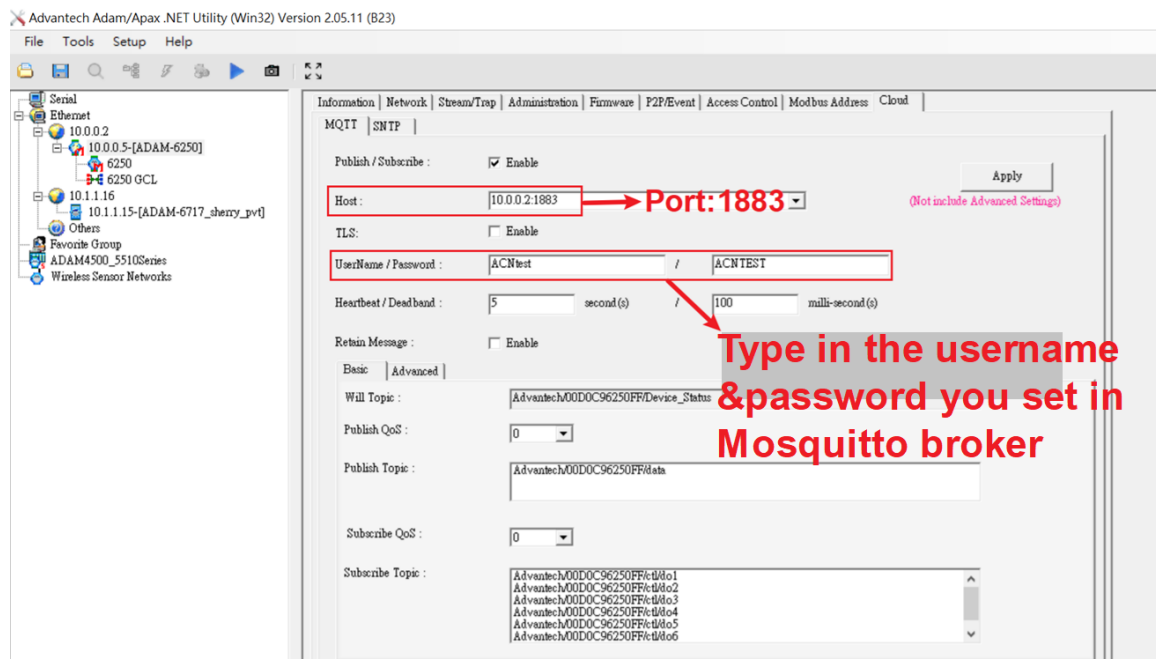


Fig.6 Set up ADAM modules in Adam/Apax .NET Utility

Step 5:

You will see the connection is built up via the broker's prompt.

```
D:\mosquitto>D:\mosquitto>mosquitto.exe -c mosquitto.conf -v
1585193356: mosquitto version 1.6.7 starting
1585193356: Config loaded from mosquitto.conf.
1585193356: Opening ipv6 listen socket on port 1883.
1585193356: Opening ipv4 listen socket on port 1883.
1585193357: New connection from 10.0.0.5 on port 1883.
1585193357: New client connected from 10.0.0.5 as ADAM6250_00DOC96250FF (p2, cl, k5, u'ACntest').
1585193357: Will message specified (84 bytes) (r1, q0).
1585193357: Advantech/00DOC96250FF/Device Status
1585193357: Sending CONNACK to ADAM6250_00DOC96250FF (0, 0)
1585193357: Received SUBSCRIBE from ADAM6250_00DOC96250FF
1585193357: Advantech/00DOC96250FF/ctl/# (QoS 0)
1585193357: ADAM6250_00DOC96250FF 0 Advantech/00DOC96250FF/ctl/#
1585193357: Sending SUBACK to ADAM6250_00DOC96250FF
1585193357: Received SUBSCRIBE from ADAM6250_00DOC96250FF
1585193357: Advantech/00DOC96250FF/read/data (QoS 0)
1585193357: ADAM6250_00DOC96250FF 0 Advantech/00DOC96250FF/read/data
1585193357: Sending SUBACK to ADAM6250_00DOC96250FF
1585193357: Received PUBLISH from ADAM6250_00DOC96250FF (d0, q0, r0, m0, 'Advantech/00DOC96250FF/Device_Status', ... (81 bytes))
1585193357: Received PUBLISH from ADAM6250_00DOC96250FF (d0, q0, r0, m0, 'Advantech/00DOC96250FF/data', ... (199 bytes))
1585193357: Received PUBLISH from ADAM6250_00DOC96250FF (d0, q0, r1, m0, 'Advantech/00DOC96250FF/cfg/sensor/di1', ... (12 bytes))
1585193358: Received PUBLISH from ADAM6250_00DOC96250FF (d0, q0, r1, m0, 'Advantech/00DOC96250FF/cfg/sensor/di2', ... (12 bytes))
1585193358: Received PUBLISH from ADAM6250_00DOC96250FF (d0, q0, r1, m0, 'Advantech/00DOC96250FF/cfg/sensor/di3', ... (12 bytes))
1585193358: Received PUBLISH from ADAM6250_00DOC96250FF (d0, q0, r1, m0, 'Advantech/00DOC96250FF/cfg/sensor/di4', ... (12 bytes))
1585193358: Received PUBLISH from ADAM6250_00DOC96250FF (d0, q0, r1, m0, 'Advantech/00DOC96250FF/cfg/sensor/di5', ... (12 bytes))
1585193358: Received PUBLISH from ADAM6250_00DOC96250FF (d0, q0, r1, m0, 'Advantech/00DOC96250FF/cfg/sensor/di6', ... (12 bytes))
1585193358: Received PUBLISH from ADAM6250_00DOC96250FF (d0, q0, r1, m0, 'Advantech/00DOC96250FF/cfg/sensor/di7', ... (12 bytes))
1585193358: Received PUBLISH from ADAM6250_00DOC96250FF (d0, q0, r1, m0, 'Advantech/00DOC96250FF/cfg/sensor/di8', ... (12 bytes))
1585193358: Received PUBLISH from ADAM6250_00DOC96250FF (d0, q0, r1, m0, 'Advantech/00DOC96250FF/cfg/sensor/di9', ... (12 bytes))
```

Fig.7 Connection status will be displayed in broker's prompt

We could also use another client to connect to Mosquitto broker, and try it different ways. One is to connect broker without giving username and password, another one is to connect broker with username and password. And you will obtain different results as below Fig.8,

Broker

```

C:\Windows\System32\cmd.exe - mosquitto.exe -c mosquitto.conf -v
1585199775: Sending PINGRESP to ADAM6250_00DOC96250FF
1585199780: Received PINGREQ from ADAM6250_00DOC96250FF
1585199780: Sending PINGRESP to ADAM6250_00DOC96250FF
1585199785: Received PINGREQ from ADAM6250_00DOC96250FF
1585199785: Sending PINGRESP to ADAM6250_00DOC96250FF
1585199790: Received PINGREQ from ADAM6250_00DOC96250FF
1585199790: Sending PINGRESP to ADAM6250_00DOC96250FF
1585199795: Received PINGREQ from ADAM6250_00DOC96250FF
1585199795: Sending PINGRESP to ADAM6250_00DOC96250FF
1585199798: New connection from 10.0.0.2 on port 1883.
1585199798: Sending CONNACK to 10.0.0.2 (0, 5)
1585199798: Socket error on client <unknown>, disconnecting.
1585199800: Received PINGREQ from ADAM6250_00DOC96250FF
1585199800: Sending PINGRESP to ADAM6250_00DOC96250FF
1585199805: Received PINGREQ from ADAM6250_00DOC96250FF
1585199805: Sending PINGRESP to ADAM6250_00DOC96250FF
1585199808: New connection from 10.0.0.2 on port 1883.
1585199808: Sending CONNACK to 10.0.0.2 (0, 5)
1585199808: Socket error on client <unknown>, disconnecting.
1585199810: Received PINGREQ from ADAM6250_00DOC96250FF
1585199810: Sending PINGRESP to ADAM6250_00DOC96250FF
1585199815: Received PINGREQ from ADAM6250_00DOC96250FF
1585199815: Sending PINGRESP to ADAM6250_00DOC96250FF
1585199820: Received PINGREQ from ADAM6250_00DOC96250FF
1585199820: Sending PINGRESP to ADAM6250_00DOC96250FF
1585199822: New connection from 10.0.0.2 on port 1883.
1585199822: New client connected from 10.0.0.2 as mosq-vJBETOMb6kAynSF2v4 (p2, cl, k60, u'ACNTest').
1585199822: No will message specified.
1585199822: Sending CONNACK to mosq-vJBETOMb6kAynSF2v4 (0, 0)
1585199822: Received SUBSCRIBE from mosq-vJBETOMb6kAynSF2v4
1585199822: Advantech/00DOC96250FF/data (QoS 0)
1585199822: mosq-vJBETOMb6kAynSF2v4 0 Advantech/00DOC96250FF/data
1585199822: Sending SUBACK to mosq-vJBETOMb6kAynSF2v4
1585199825: Received PINGREQ from ADAM6250_00DOC96250FF
1585199825: Sending PINGRESP to ADAM6250_00DOC96250FF
1585199830: Received PINGREQ from ADAM6250_00DOC96250FF
1585199830: Sending PINGRESP to ADAM6250_00DOC96250FF
1585199835: Received PINGREQ from ADAM6250_00DOC96250FF
1585199835: Sending PINGRESP to ADAM6250_00DOC96250FF
  
```

Subscriber

```

Microsoft Windows [版本 10.0.16299.1146]
(c) 2017 Microsoft Corporation. 著作權所有，並保留一切權利。

D:\mosquitto1.6.7_unpw\mosquitto>mosquitto_sub.exe -h 10.0.0.2 -t Advantech/00DOC96250FF/data
Connection error: Connection Refused: not authorised.

D:\mosquitto1.6.7_unpw\mosquitto>mosquitto_sub.exe -h 10.0.0.2 -t Advantech/00DOC96250FF/data
Connection error: Connection Refused: not authorised.

D:\mosquitto1.6.7_unpw\mosquitto>mosquitto_sub.exe -h 10.0.0.2 -t Advantech/00DOC96250FF/data -u ACNTest -P ACNTEST
  
```

Fig.8 Use another subscriber to connect Mosquitto broker