

Advantech AE Technical Share Document

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Category	■FAQ □SOP	Related OS	N/A
Abstract	What are pub QoS and sub QoS mean in ADAM MQTT?		
Keyword	MQTT, pub QoS, sub QoS , ADAM-6000, ADAM-6200		
Related Product	ADAM-6000, ADAM-6200		

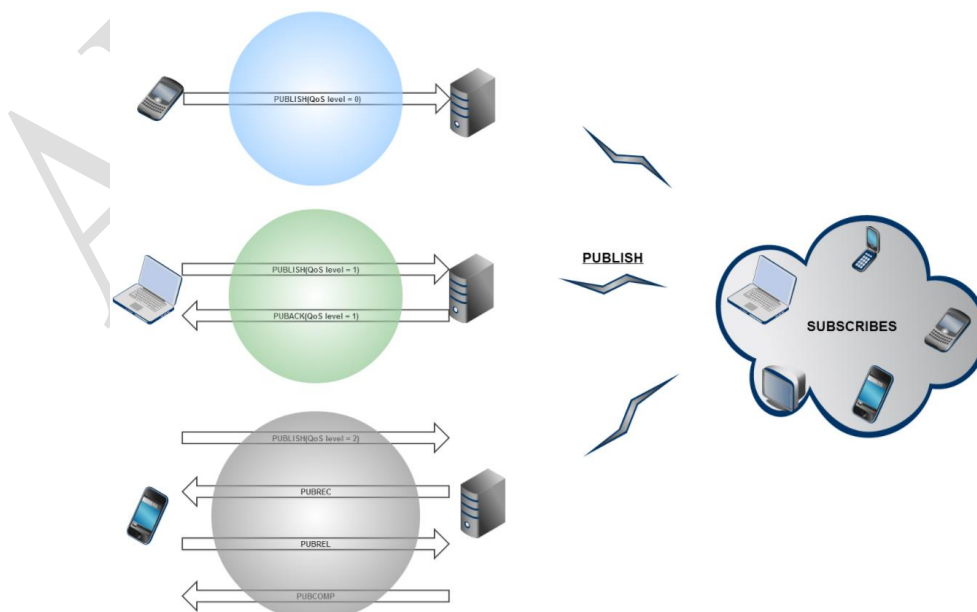
■ Problem Description:

There are pub QoS and sub QoS parameter in Adam/Apax.net Utility MQTT setting page. What are these terms mean in ADAM MQTT function?

The screenshot shows the MQTT configuration window. The 'Publish / Subscribe' checkbox is checked. The 'Host' is set to 'iot.eclipse.org:1883'. The 'Heartbeat' is set to 5 seconds. The 'Deadband' is set to 100 milliseconds. The 'Retain Message' checkbox is checked. The 'Will Topic' is set to 'Advantech00DOC9FAPOC7/Device_Status'. The 'Publish QoS' is set to 2. The 'Publish Topic' is set to 'Advantech00DOC9FAPOC7/data'. The 'Subscribe QoS' is set to 2. The 'Subscribe Topic' is set to 'Advantech00DOC9FAPOC7/c00001' and 'Advantech00DOC9FAPOC7/c00002'.

■ Answer

Below is a picture showing different MQTT publish QoS level with broker. From the top to bottom, they are QoS=0, 1 and 2, respectively.



So **publish QoS** defines the message delivery quality **between broker and publisher (ADAM)**, so here means ADAM will use QoS=2 for publishing IO data to the broker.

On the other hand, **subscribe QoS** defines the message delivery quality **between broker and subscriber (ADAM)**. After broker receiving the message from publisher, it will base on the sub QoS setting from subscriber to send this message.

For example, if the data is using pub QoS=2 to publish to broker, and user use Sub QoS=2 to subscribe the data, then the receive QoS will be 2, which is seeing four-way handshake between broker and subscriber(ADAM).

The screenshot shows a Wireshark capture of MQTT traffic between ADAM (Subscriber) and a Broker. The packet list shows the following sequence:

No.	Time	Source	Destination	Protocol	Length	Info
8332	353.243814	10.1.1.27	198.41.30.241	MQTT	90	Connect Command
8334	353.447945	198.41.30.241	10.1.1.27	MQTT	60	Connect Ack
8335	353.449647	10.1.1.27	198.41.30.241	MQTT	88	Subscribe Request
8336	353.656216	198.41.30.241	10.1.1.27	MQTT	60	Subscribe Ack
8339	354.061425	198.41.30.241	10.1.1.27	MQTT	303	Publish Message
8340	354.063163	10.1.1.27	198.41.30.241	MQTT	58	Publish Received
8344	354.269269	198.41.30.241	10.1.1.27	MQTT	60	Publish Release
8345	354.271201	10.1.1.27	198.41.30.241	MQTT	58	Publish Complete
8354	354.604532	10.1.1.27	198.41.30.241	MQTT	100	Publish Message
8367	354.817306	198.41.30.241	10.1.1.27	MQTT	60	Publish Received
8368	354.818285	10.1.1.27	198.41.30.241	MQTT	58	Publish Release

The packet details for frame 8335 (Subscribe Request) are shown below:

```

MQ Telemetry Transport Protocol
  Subscribe Request
    1000 0010 = Header Flags: 0x82 (Subscribe Request)
    Msg Len: 32
    Message Identifier: 19620
    Topic: Advantech/00D0C9FAF0C7/data
    ....10 = Granted Qos: Assured Delivery (2)
  
```

The "Subscribe payload" is highlighted in the details pane, showing the granted QoS of 2.

If publish QoS is 2, but user use sub QoS=1 to subscribe data, then it will only show two-way handshake between broker and subscriber(ADAM).

The screenshot shows a Wireshark capture of MQTT traffic between ADAM (Subscriber) and a Broker. The packet list shows the following sequence:

No.	Time	Source	Destination	Protocol	Length	Info
3	0.330041	10.1.1.26	198.41.30.241	MQTT	60	Ping Request
8	0.534648	198.41.30.241	10.1.1.26	MQTT	60	Ping Response
64	4.749084	10.1.1.26	198.41.30.241	MQTT	230	Connect Command
72	4.953297	198.41.30.241	10.1.1.26	MQTT	60	Connect Ack
74	4.953629	10.1.1.26	198.41.30.241	MQTT	128	Subscribe Request
80	5.160765	198.41.30.241	10.1.1.26	MQTT	60	Subscribe Ack
89	5.363352	198.41.30.241	10.1.1.26	MQTT	60	Subscribe Ack
127	6.194018	198.41.30.241	10.1.1.26	MQTT	58	Publish Complete
137	7.014700	198.41.30.241	10.1.1.26	MQTT	100	Publish Message
139	7.014833	10.1.1.26	198.41.30.241	MQTT	60	Publish Ack

The packet details for frame 74 (Subscribe Request) are shown below:

```

MQ Telemetry Transport Protocol
  Subscribe Request
    1000 0010 = Header Flags: 0x82 (Subscribe Request)
    Msg Len: 37
    Message Identifier: 2
    Topic: Advantech/00D0C9FAF0C7/read/data
    ...01 = Granted Qos: Acknowledged deliver (1)
  
```

The "Subscribe payload" is highlighted in the details pane, showing the granted QoS of 1.