**AT+QMTCFG Configure Optional Parameters of MQTT**

AT+QMTCFG="version",<tcpconnectID>[,<vsn>]

AT+QMTCFG="pdpcid",<tcpconnectID>[,<cid>]

AT+QMTCFG="keepalive",<tcpconnectID>[,<keep-alive time>]

AT+QMTCFG="session",<tcpconnectID>[,<clean\_session>]

AT+QMTCFG="timeout",<tcpconnectID>[,<pkt\_timeout>[,<retry\_times>][,<timeout\_notice>]]

AT+QMTCFG="version",0,4

AT+QMTCFG="pdpcid",0,1

AT+QMTCFG="keepalive",0,120

AT+QMTCFG="session",0,1

AT+QMTCFG="timeout",0,5,3,0

<tcpconnectID>

MQTT socket identifier. The range is 0-5.

<vsn>

MQTT protocol version. 3 MQTT v3.1 4 MQTT v3.1.1

<cid>

The PDP to be used by the MQTT client. The range is 1-16. The default value is 1.

<keep-alive time>

Keep-alive time. The range is 0-3600. The default value is 120. Unit: second. It defines the maximum time interval between messages received from a client. If the server does not receive a message from the client within 1.5 times of the keep-alive time period, it disconnects the client as if the client has sent a DISCONNECT message.

0 No limitations on the maximum time interval between messages received from a client.

<clean\_session>

Configure the session type.

0 The server must store the subscriptions of the client after it is disconnected.

1 The server must discard any previously maintained information about the client and treat the connection as “clean”.

<pkt\_timeout>

Timeout of the packet delivery. The range is 1-60. The default value is 5.Unit: second.

<retry\_times>

Retry times when packet delivery times out. The range is 0-10. The default valueis 3.

<timeout\_notice>

0 Not report timeout message when transmitting packet. 1 Report timeout message when transmitting packet.

**AT+QMTOPEN Open a Network for MQTT Client**

AT+QMTOPEN=<tcpconnectID>,<host\_name>,<port>

Response : +QMTOPEN: <tcpconnectID>,<result>

AT+QMTOPEN=0,"cscloud.yunqinwang.com",61613

<host\_name>

The address of the server. It could be an IP address or a domain name. The maximum length is 100 bytes.

<port>

The port number of the server. The range is 0-65535.

<result>

Result of the command execution.

-1 Failed to open network. 0 Network opened successfully. 1 Wrong parameter

2 MQTT socket identifier is occupied. 3 Failed to activate PDP. 4 Failed to parse domain name

5 Network disconnection error.

**AT+QMTCONN Connect a Client to MQTT Server**

AT+QMTCONN=<tcpconnectID>,<clientID>[,<username>[,<password>]]

Response : +QMTCONN: <tcpconnectID>,<result>[,<ret\_code>]

AT+QMTCONN=0,"clientExample",”admin”,” ibs\_admin”

<clientID>

The client identifier string.

<username>

User name of the client. It can be used for authentication.

<password>

Password corresponding to the user name of the client. It can be used for authentication.

<result>

Result of the command execution.

0 Packet sent successfully and ACK received from server.

1 Packet retransmission. 2 Failed to send packet.

<ret\_code>

Connection status return code.

0 Connection Accepted. 1 Connection Refused: Unacceptable Protocol Version

2 Connection Refused: Identifier Rejected. 3 Connection Refused: Server Unavailable

4 Connection Refused: Bad User Name or Password. 5 Connection Refused: Not Authorized

**AT+QMTSUB Subscribe to Topics**

AT+QMTSUB=<tcpconnectID>,<msgID>,<topic1>,<qos1>[,<topic2>,<qos2>…]

+QMTSUB: <tcpconnectID>,<msgID>,<result>[,<value>]

AT+QMTSUB=0,0,“nbsub”,0

<msgID>

Message identifier of packet. The range is 1-65535.

<topic>

The topic that the client wants to subscribe to or unsubscribe from.

<qos>

The QoS level at which the client wants to publish the messages.

0 At most once 1 At least once 2 Exactly once

<result>

Result of the command execution.

0 Sent packet successfully and received ACK from server

1 Packet retransmission 2 Failed to send packet

<value>

If <result> is 0, it is a vector of granted QoS levels.

If <result> is 1, it means the times of packet retransmission.

If <result> is 2, it will not be presented.

**AT+QMTPUB Publish Messages**

AT+QMTPUB=<tcpconnectID>,<msgID>,<qos>,<retain>,<topic>

After > is responded, input the data to be sent. Tap CTRL+Z to send, and tap ESC to cancel the operation.

Response ：+QMTPUB: <tcpconnectID>,<msgID>,<result>[,<value>]

AT+QMTPUB=0,0,0,1,"nbtest"

>

{"mqttType":"0","devNum":"863859040032810-01-2","dataValue1":"21.4","dataValue2":"33.1"} \032\e

<msgID>

Message identifier of packet. The range is 0-65535. It will be 0 only when <qos>=0.

<qos>

The QoS level at which the client wants to publish the messages.

0 At most once. 1 At least once. 2 Exactly once

<retain>

Whether or not the server will retain the message after it has been delivered to the current subscribers.

0 The server will not retain the message after it has been delivered to the current subscribers.

1 The server will retain the message after it has been delivered to the current subscribers.

<topic>

Topic that needs to be published.

<msg>

Message to be published.

<result>

Result of the command execution.

0 Packet sent successfully and ACK received from server (message that published when <qos>=0 does not require ACK).

1 Packet retransmission. 2 Failed to send packet

<value>

If <result> is 1, it means the times of packet retransmission.

If <result> is 0 or 2, it will not be presented.

**AT+QMTPUBEX Publish Messages**

AT+QMTPUBEX=<tcpconnectID>,<msgID>,<qos>,<retain>,<topic>,“<msg>

Response : +QMTPUBEX: <tcpconnectID>,<msgID>,<result>[,<value>]

AT+QMTPUBEX=0,0,0,1,"nbtest",”hello breuning”

**"+QMTSTAT" URC to Indicate State Change in MQTT Link Layer**

+QMTSTAT: <tcpconnectID>,<err\_code>

When the state of MQTT link layer is changed, the client will close the MQTT connection and report the URC.

|  |  |  |
| --- | --- | --- |
| <err\_code> | Description | How to do |
| 1 | The connection is closed or reset by a peer. | Execute AT+QMTOPEN command to reopen the MQTT connection. |
| 2 | Sending PINGREQ packet timed  out or failed. | Deactivate PDP first, and then activate PDP and  reopen MQTT connection. |
| 3 | Sending CONNECT packet timed  out or failed. | 1. Check whether the inputted user name and password are correct.  2. Make sure the client ID is not used.  3. Reopen MQTT connection and try to send CONNECT packet to the server again. |
| 4 | Receiving CONNACK packet timed  out or failed. | 1. Check whether the inputted user name and password are correct.  2. Make sure the client ID is not used.  3. Reopen MQTT connection and try to send CONNECT packet to the server again. |
| 5 | The client sends DISCONNECT packet to sever and the server is initiative to close MQTT connection. | This is a normal process. |
| 6 | The client takes the initiative to close the MQTT connection due to packet sending failure all the time. | 1. Make sure the data is correct.  2. Try to reopen MQTT connection since there may be network congestion or an error. |
| 7 | The link is not alive or the server is  unavailable. | Make sure the link is alive or the server is available currently. |

**AT+GSN Request International Mobile Equipment Identity (IMEI)** (300ms)

AT+GSN

**AT+QSIMDET (U)SIM Card Detection**(300ms)

AT+QSIMDET=<enable>,<insertlevel>

AT+QSIMDET=1,0

<enable>

Enable or disable (U)SIM card detection.

0 Disable 1 Enable

<insertlevel>

The level of (U)SIM card detection pin when a (U)SIM card is inserted.

0 Low level 1 High level

Notes：Hot-swap function takes effect after the module is restarted.

**AT+QSIMSTAT (U)SIM Card Insertion Status Report**(300ms)

AT+QSIMSTAT=<enable>

AT+QSIMSTAT?

Response：+QSIMSTAT: <enable>,<insertedstatus>

AT+QSIMSTAT=1

AT+QSIMSTAT?

<enable>

Enable or disable (U)SIM card insertion status report. If it is enabled, when (U)SIM card is removed or inserted, the URC +QSIMSTAT: <enable>,<insertedstatus> will be reported.

0 Disable 1 Enable

<insertedstatus>

(U)SIM card is inserted or removed. This argument is not allowed to be set.

0 Removed 1 Inserted 2 Unknown, before (U)SIM initialization

**AT+CREG Network Registration Status**(300ms)

AT+CREG?

+CREG: <n>,<stat>

AT+CREG?

<stat>

0 Not registered. MT is not currently searching an operator to register to.

1 Registered, home network.

2 Not registered, but MT is currently trying to attach the network or searching an operator to register to.

3 Registration denied. 4 Unknown. 5 Registered, roaming.

**AT+CREG Network Registration Status**(300ms)