FIBOCOM L610 Series
AT Commands_MQTT

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Applicability Type

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1	L610 Series	NA

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Change History

Version	Author	Assessor	Approver	Update Date	Description
V1.0.1	Sun Daqing	Ma Menghan	Wang Hailiang	2020-06-13	Standardized format
V1.0.0	Sun Daqing	Long Zhongyou	Long Zhongyou	2020-01-14	Initial version

Contents

1 MQTT Commands

1.1 +MQTTUSER, Set user name and password

1.1.1 Description

A connecting client can specify a user name and a password, this command should be set before open a MQTT connection. If the user name and password is incorrect, MQTT server will refuse the connection. This command is essential because of the server need this information to connect.

1.1.2 Syntax

Command	Response/Action
+MQTTUSER=<Client id>,<Username>,<Password>[,<ClientIDStr>]	OK or +CME ERROR: <err>
+MQTTUSER?	+MQTTUSER: <Client id>,<Username>,<Password>[,<ClientIDStr>] +MQTTUSER: <Client id>,<Username>,<Password>[,<ClientIDStr>] OK or +MQTTUSER: <Client id>,<Username>,<Password>[,<ClientIDStr>] OK or OK
+MQTTUSER=?	+MQTTUSER: (list of supported <Client id>s),<ulength>,<plength>[,<clength>] OK

1.1.3 Attributes

Pin Restricted	Persistent	Sync Mode	Effect Immediately	Time of Duration
Yes	No	Yes	Yes	< 1s

1.1.4 Defined Values

<Client id>: A unique number that identifies a connection, integer type. Valid client id is 1, 2.

<Username>: Registered Username for MQTT server, string type, the max length is 128 bytes.

<Password>: Registered Password for MQTT server, string type, the max length is 128 bytes.

<ClientIDStr>: Registered ClientID for MQTT server, string type, the max length is 23 bytes. It's an optional

parameter, if not set, this field would be replaced by the IMEI of the module.

<ulength>: integer type value indicating the maximum length of field <Username>

<plength>: integer type value indicating the maximum length of field <Password>

<clength>: integer type value indicating the maximum length of field <ClientIDStr>

1.2 +MQTTOPEN, Establish a connection via MQTT protocol

1.2.1 Description

This command is used for opening the connection between the module and MQTT Server or between the module and MQTT-SN Gateway.

1.2.2 Syntax

Command	Response/Action
+MQTTOPEN=<Clientid>,<Remote IP/URL>,<RemotePort>,<Cleansession flag>,<Keepalive time>	OK +MQTTOPEN: <Client id>,<Status> or +CME ERROR: <err>
+MQTTOPEN?	+MQTTOPEN: <Client id> OK for each client id that can be opened or +MQTTOPEN: 0 OK if there are no free client.
+MQTTOPEN=?	+MPQTTOPEN: (list of supported <Client id>s),(<Remote IP/URL>),(range of supported <RemotePort>s),(range of supported <Cleansession flag>s),(range of supported <Keepalive Time>s) OK

1.2.3 Attributes

Pin Restricted	Persistent	Sync Mode	Effect Immediately	Time of Duration
Yes	No	No	Yes	< 1s

1.2.4 Defined Values

<Clientid>: A unique number that identifies a connection, integer type. Valid client id is 1, 2, 101, 102.

Client id is 1 or 2, the module will connect a MQTT Server.

Client id is 101 or 102, the module will connect a MQTT-SN Gateway.

<Remote IP/URL>: String type.

IP: IP of the remote site in the format "AAA.BBB.CCC.DDD". The range of each octet is 0-255. Value can be written in 1, 2, or 3 digits.

Host name of remote site: The host-name convention should meet the rules as describe in RFC-1035 section: 2.3 Conventions. Syntax is not validated, except the maximum length (255 characters).

<Remote Port>: Port of remote site.

Port range: 1-65535 (decimal digits) for outgoing connection.

<CleansessionFlag>: Type of protocol stack, integer type and valid valueis0,1.

0: information of client will not be cleaned when the connection is closed

1: information of client will be cleaned when the connection is closed

<KeepaliveTime>: Keepalive interval time, the range of time is 1-300(s).

<Status>: integer type and range 0-1.

0: fail

1: success

1.3 +MQTTCLOSE, Close the MQTT connection

1.3.1 Description

This command causes the module to free the socket accumulating buffer and to close the socket.

1.3.2 Syntax

Command	Response/Action
+MQTTCLOSE=<Client id>	OK +MQTTCLOSE: <Client id>,<Status> or ERROR
+MQTTCLOSE?	+MQTTCLOSE: <Client id>

Command	Response/Action
	OK for each client id that can be closed or +MQTTCLOSE: 0 OK if there are no free client id.
+MQTTCLOSE=?	+MQTTCLOSE: (list of supported <Client id>s) OK

1.3.3 Attributes

Pin Restricted	Persistent	Sync Mode	Effect Immediately	Time of Duration
Yes	No	No	Yes	< 1s

1.3.4 Defined Values

<Client id>: A unique number that identifies a connection, integer type. Valid client id is 1, 2, 101, 102.

Client id is 1 or 2, the module will connect a MQTT Server.

Client id is 101 or 102, the module will connect a MQTT-SN Gateway.

<Status>: integer type and range 0-1.

0: fail

1: success

1.4 +MQTTBREAK, MQTT disconnect report

1.4.1 Description

This is an unsolicited command, which is reported when the MQTT/MQTT-SN disconnected unexpected.

1.4.2 Syntax

Command	Response/Action
Unsolicited Response	+MQTTBREAK: <Client id>,<cause>

1.4.3 Attributes

Pin Restricted	Persistent	Sync Mode	Effect Immediately	Time of Duration
Yes	NA	NA	NA	NA

1.4.4 Defined Values

<Client id>: A unique number that identifies a connection, integer type. Valid client id is 1, 2, 101, 102.

Client id is 1 or 2, the module will connect a MQTT Server.

Client id is 101 or 102, the module will connect a MQTT-SN Gateway.

<cause>: The cause of the MQTT disconnected, integer type and the range of the cause is 1-3.

1: MQTT disconnected by accident, such as the server initiative to disconnect the current connection or the client disconnected because of the ping request no response.

2: Wireless Link disconnected, such as the valid IP address disappeared owing to the network failure.

3: GPRS network not registered, such as the report of the CGREG or CEREG is 0.

1.5 +MQTTSUB, Subscribe A topic

1.5.1 Description

After the client is connected with MQTT server, you could subscribe one or more topic to MQTT server or MQTT-SN Gateway.

1.5.2 Syntax

Command	Response/Action
+MQTTSUB=<Client id>,<Topic/Topic id>,<Qos>	OK +MQTTSUB: <Client id>,<Status> or ERROR
+MQTTSUB=?	+MQTTSUB: (list of supported <Client id>s),<tlength/Topic id>,(range of supported <Qos>s) OK

1.5.3 Attributes

Pin Restricted	Persistent	Sync Mode	Effect Immediately	Time of Duration
Yes	No	No	Yes	< 1s

1.5.4 Defined Values

<Client id>: A unique number that identifies a connection, integer type. Valid client id is 1,2,101,102.

Client id is 1 or 2, the module will connect a MQTT Server.

Client id is 101 or 102, the module will connect a MQTT-SN Gateway.

<Topic>: The topic should be printable ASCII characters, string type and the range of the topic length is 1-255.

If the module has connected to a MQTT-SN Gateway, the topic can be a Short -Topic and the range of Short-Topic length is 2.

<Topic id>: Topic id should be integer number, range 1-65535. When you need to use Topic id, the Client id must be 101 or 102.

<Qos>: The quality of service, integer type, range 0-2.

0: At most once, the message may not be delivered

1: At least once, the message will be delivered, but may be delivered more than once in some circumstances

2: Once and one only, the message will be delivered exactly one

<Status>: integer type and range 0-1.

0: fail

1: success

<tlength>: integer type value indicating the maximum length of field <Topic>.

1.6 +MQTTUNSUB, Unsubscribe A topic

1.6.1 Description

This command will unsubscribe the specific topic from the server.

1.6.2 Syntax

Command	Response/Action
+MQTTUNSUB=<Client id>,<Topic/Topic id>	OK +MQTTUNSUB: <Client id>,<Status> or ERROR
+MQTTUNSUB=?	+MQTTUNSUB: (list of supported <Client id>s),<tlength/Topic id> OK

1.6.3 Attributes

Pin Restricted	Persistent	Sync Mode	Effect Immediately	Time of Duration
Yes	No	No	Yes	< 1s

![FIBOCOM](logo)

1.6.4 Defined Values

<Client id>: A unique number that identifies a connection, integer type. Valid client id is 1,2,101,102.

> Client id is 1 or 2, the module will connect a MQTT Server.

> Client id is 101 or 102, the module will connect a MQTT-SN Gateway.

<Topic>: The topic should be printable ASCII characters, string type and the range of the topic length is

> 1-255.If the module has connected to a MQTT-SN Gateway, the topic can be a Short -Topic and

> the range of Short-Topic length is 2.

<Topic id>: Topic id should be integer number, range 1-65535. When you need to use Topic id, the

> Client id must be 101 or 102.

<Status>: integer type and range 0-1

> 0: unsubscribe fail

> 1: unsubscribe success

<tlength>: integer type value indicating the maximum length of field <Topic>.

1.7 +MQTTPUB, Publish a topic

1.7.1 Description

After the client is connected with MQTT server or MQTT-SN Gateway, you can publish a message with a specific topic.

1.7.2 Syntax

Syntax	Response/Action
+MQTTPUB=<Client id>,<Topic/Topic id>,<Qos>,<Retain flag>,<Payload/Datasize>	OK +MQTTPUB: <Client id>,<Status> or ERROR
+MQTTPUB=?	+MQTTPUB: (list of supported <Client id>s),<tlength/Topic id>,(range of supported <Qos>s),(range of supported <Retain flag>s),<plength> OK

1.7.3 Attributes

Pin Restricted	Persistent	Sync Mode	Effect Immediately	Time of Duration
Yes	No	No	Yes	< 1s

1.7.4 Defined Values

<Client id>: A unique number that identifies a connection, integer type and valid client id is 1,2,101,102.

Client id is 1 or 2, the module will connect a MQTT Server.

Client id is 101 or 102, the module will connect a MQTT-SN Gateway.

<Topic>: The topic should be printable ASCII characters, string type and the range of the topic length is 1-255. If the module has connected to a MQTT-SN Gateway, the topic can be a Short -Topic and the range of Short-Topic length is 2.

<Topic id>: Topic id should be integer number, range 1-65535. When you need to use Topic id, the Client id must be 101 or 102.

<Qos>: The quality of service, integer type, range 0-2.

0: At most once, the message may not be delivered

1: At least once, the message will be delivered, but may be delivered more than once in some circumstances

2: Once and one only, the message will be delivered exactly one.

<Retain flag>: Retain flag, integer type, range 0, 1. The Retain flag indicates whether the server should retain the message which is published by the server.

0: this message should not be retained by the MQTT server

1: the MQTT server should retain a copy of the message

<Payload>: The message should be printable ASCII characters, string type and the range of message length is 0-1024.

<Datasize>: Integer type and range 1-1024

This command cause data will be sending in HEX. After command received, Module will respond "><CR><LF>". Send any data in HEX. The data buffer range is 1<=Datasize<=1024 bytes. When Module receive the corresponding length data, the data will be push automatic and returns to regular AT command mode. If Module does not receive corresponding length data in 30 seconds, the data which have received will be pushed and respond "OK<CR><LF>" OR respond "ERROR<CR><LF>" when nothing received.

<Status>: integer type and range 0-1

0: publish fail

1: publish success

<tlength>: integer type value indicating the maximum length of field <Topic>

<plength>: integer type value indicating the maximum length of field <Payload>

1.8 +MQTTCONF, Configure form of receive message

1.8.1 Description

After subscribe a topic, this command is decided to the form of the unsolicited event when any message about the topic is received.

1.8.2 Syntax

Command	Response/Action
+MQTTCONF=<mode>	OK or +CME ERROR: <err>
+MQTTCONF?	+MQTTCONF: <mode> OK
+MQTTCONF=?	+MQTTCONF: (list of supported <mode>s) OK

1.8.3 Attributes

Pin Restricted	Persistent	Sync Mode	Effect Immediately	Time of Duration
Yes	No	Yes	Yes	< 1s

1.8.4 Defined Values

<mode>: the form of the unsolicited message, integer type, range 0,1.

    0: default value, report the content of the topic and payload directly by the MQTTMSG command.

    1: report the length of the topic and payload by the MQTTMSGI command.

1.9 +MQTTMSG, Receive a message from server

1.9.1 Description

After subscribe a topic, this unsolicited event will be sent by the Module to the terminal when any message about the topic is received. This command will show the content of the message.

1.9.2 Syntax

Command	Response/Action
Unsolicited Response	+MQTTMSG: <Client id>,<Qos>,<Topic/Topic id>,<Payload>

1.9.3 Attributes

Pin Restricted	Persistent	Sync Mode	Effect Immediately	Time of Duration
Yes	NA	NA	NA	NA

1.9.4 Defined Values

<Client id>: A unique number that identifies a connection, integer type. Valid client id is 1,2,101,102.

Client id is 1 or 2, the module will connect a MQTT Server.

Client id is 101 or 102, the module will connect a MQTT-SN Gateway.

<Qos>: The quality of service, integer type, range 0-2.

0: At most once, the message may not be delivered

1: At least once, the message will be delivered, but may be delivered more than once in some circumstances

2: Once and one only, the message will be delivered exactly one

<Topic>: The topic should be printable ASCII characters, string type and the range of the topic length is 1-255.

<Topic id>: Topic id should be integer number, range 1-65535. When you need to use Topic id, the Client id must be 101 or 102.

<Payload>: The message should be printable ASCII characters, string type and the range of message length is 0-1500.

1.10 +MQTTMSGI, Receive a message's length from server

1.10.1 Description

After subscribe a topic, this unsolicited event will be sent by the Module to the terminal when any message about the topic is received. This command will show the length of the topic and payload about the message.

1.10.2 Syntax

Command	Response/Action
Unsolicited Response	+MQTTMSGI: <Client id>,<Qos>,<tlength/Topic id>,<plength>

1.10.3 Attributes

Pin Restricted	Persistent	Sync Mode	Effect Immediately	Time of Duration
Yes	NA	NA	NA	NA

1.10.4 Defined Values

<Client id>: A unique number that identifies a connection, integer type. Valid client id is 1,2,101,102.

Client id is 1 or 2, the module will connect a MQTT Server.

Client id is 101 or 102, the module will connect a MQTT-SN Gateway.

<Qos>: The quality of service, integer type, range 0-2.

0: At most once, the message may not be delivered

1: At least once, the message will be delivered, but may be delivered more than once in some circumstances.

2: Once and one only, the message will be delivered exactly one.

<Topic id>: Topic id should be integer number, range 1-65535. When you need to use Topic id, the Client id must be 101 or 102.

<tlength>: integer type value indicating the received length of the topic.

<plength>: integer type value indicating the received length of the payload.

1.11 +MQTTREAD, Read the received message

1.11.1 Description

After received a message by the MQTTMSGI command, this command is used to read the content of the message.

1.11.2 Syntax

Command	Response/Action
+MQTTREAD=<Client id>	+MQTTREAD: <Client id>,0,0,0 OK if the client id is not received message or +MQTTREAD: <Client id>,<Qos>,<tlength>,<plength>, <Topic/Topic id>,<Payload> OK if the client id has received message or +CME ERROR: <err>
+MQTTREAD=?	+MQTTREAD: (list of supported <Client id>s) OK

1.11.3 Attributes

Pin Restricted	Persistent	Sync Mode	Effect Immediately	Time of Duration
Yes	No	Yes	Yes	< 1s

1.11.4 Defined Values

<Client id>: A unique number that identifies a connection, integer type. Valid client id is 1,2,101,102.

Client id is 1 or 2, the module will connect a MQTT Server.

Client id is 101 or 102, the module will connect a MQTT-SN Gateway.

<Qos>: The quality of service, integer type, range 0-2.

0: At most once, the message may not be delivered

1: At least once, the message will be delivered, but may be delivered more than once in some circumstances.

2: Once and one only, the message will be delivered exactly one.

<tlength>: integer type value indicating the received length of the topic.

<plength>: integer type value indicating the received length of the payload.

<Topic>: The topic should be printable ASCII characters, string type and the range of the topic length is 1-255.

<Topic id>: Topic id should be integer number, range 1-65535. When you need to use Topic id, the Client id must be 101 or 102.

<Payload>: The message should be printable ASCII characters, string type and the range of message length is 0-1024.

1.12 +MQTTWILL, Set MQTT will

1.12.1 Description

This command is option, and is needed to set before open a MQTT or MQTT-SN connection. If set the will message, When the client disconnected abnormally from server, the will message will be sent to the client that subscribe the will topic.

1.12.2 Syntax

Command	Response/Action
+MQTTWILL=<Client id>,<Topic>,<Qos>,<Retain flag>,<Payload>	OK or ERROR

Command	Response/Action
+MQTTWILL?	+MQTTWILL: <Client id>,<Topic>,<Qos>,<Retain flag>,<Payload>
	+MQTTWILL: <Client id>,<Topic>,<Qos>,<Retain flag>,<Payload>
	OK
	or
	+MQTTWILL: <Client id>,<Topic>,<Qos>,<Retain flag>,<Payload>
	OK
	or
	OK
+MQTTWILL=?	+MQTTWILL: (list of supported <Client id>s),<tlength>,(range of supported <Qos>s),(range of supported <Retain flag>s),<plength>
	OK

1.12.3 Attributes

Pin Restricted	Persistent	Sync Mode	Effect Immediately	Time of Duration
Yes	No	Yes	Yes	< 1s

1.12.4 Defined Values

<Client id>: A unique number that identifies a connection, integer type and valid client id is 1,2,101,102.

Client id is 1 or 2, the module will connect a MQTT Server.

Client id is 101 or 102, the module will connect a MQTT-SN Gateway.

<Topic>: The topic should be printable ASCII characters, string type and the range of the topic length is 1-255.

<Qos>: The quality of service, integer type, range 0-2.

0: At most once, the message may not be delivered

1: At least once, the message will be delivered, but may be delivered more than once in some circumstances.

2: Once and one only, the message will be delivered exactly one.

<Retain flag>: Retain flag, integer type, range 0, 1. The Retain flag indicates whether the server should retain the Will message which is published by the server.

0: this message should not be retained by the MQTT server

1: the MQTT server should retain a copy of the message

<Payload>: The payload message should be printable ASCII characters, string type and the range of will message length is 0-1024.

<tlength>: integer type value indicating the maximum length of field <Topic>.

<plength>: integer type value indicating the maximum length of field <Payload>.

2 MQTT Error

Parameter	Description
<Err>	700: "Unacceptable protocol version "
	701: "Identifier rejected"
	702: "Server unavailable"
	703: "Bad user name or password"
	704: "Not authorized"