



## **SIM7020** Series\_MQTT(S)\_Application Note

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# About Document

## Document Information

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## Related Documents

[1] SIM7020 Series AT Command Manual V1.03

### This document applies to the following products:

| Name     | Type     | Size (mm) | Comments                                                |
|----------|----------|-----------|---------------------------------------------------------|
| SIM7020C | NB1      | 17.6*15.7 | Band 1/3/5/8                                            |
| SIM7020E | NB1      | 17.6*15.7 | Band 1/3/5/8/20/28                                      |
| SIM7020G | NB2      | 17.6*15.7 | Band 1/2/3/4/5/8/12/13/17/18/19/20/25/26/28/66/70/71/85 |
| SIM7060G | NB2+GNSS | 24*24     | Band 1/2/3/4/5/8/12/13/17/18/19/20/25/26/28/66/70/71/85 |

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# 1 Purpose of this document

Based on module AT command manual, this document will introduce MQTT application process. Developers could understand and develop application quickly and efficiently based on this document.

## 2 MQTT Introduction

MQTT (Message Queue Telemetry Transport) is a messaging protocol based on the publish/subscribe paradigm under the ISO standard (ISO/IEC PRF 20922). It works on the TCP/IP protocol suite and is a publish/subscribe messaging protocol designed for remote devices with poor hardware performance and poor network conditions.

The MQTT protocol is a protocol designed for the communication of remote sensors and control devices with limited computing power and working on low-bandwidth, unreliable networks. It has the following main features:

- 1) Use the publish/subscribe message mode to provide one-to-many message publishing and uncouple the application;
- 2) Message transmission for shielding the payload content;
- 3) Provide network connection using TCP/IP;
- 4) There are three types of message publishing service quality:
  - "At most once," message publishing relies entirely on the underlying TCP/IP network. Message loss or duplication can occur. This level can be used in the following situations, environmental sensor data, loss of a read record does not matter, because there will be a second transmission in the near future.
  - "At least once" to ensure that the message arrives, but message duplication may occur.
  - "Only once" to ensure that the message arrives once. This level can be used in situations where repeated or missing messages can result in incorrect results.
- 5) small transmission, low overhead (fixed length of the head is 2 bytes), protocol exchange is minimized to reduce network traffic;

- 6) Use the Last Will and Testament features to notify the parties about the mechanism of client abort.

## 3 Bearer Configuration

Usually module will register PS service automatically.

### 3.1 PDN Auto-activation

| AT Command   | Response                                                         | Description                                                                  |
|--------------|------------------------------------------------------------------|------------------------------------------------------------------------------|
| AT+CPIN?     | +CPIN:READY<br><br>OK                                            | Check SIM card status                                                        |
| AT+CSQ       | +CSQ: 20,0<br><br>OK                                             | Check RF signal                                                              |
| AT+CGREG?    | +CGREG: 0,1<br><br>OK                                            | Check PS service                                                             |
| AT+CGACT?    | +CGACT: 1,1<br><br>OK                                            | Activated automatically                                                      |
| AT+COPS?     | +COPS: 0,2,"46000",9<br><br>OK                                   | Check operator information<br>46000 is Numeric <oper><br>9 is NB-IOT network |
| AT+CGCONTRDP | +CGCONTRDP:<br>1,5,"cmnbiot","100.80.73.123.255.255.0"<br><br>OK | Attached PS domain and got IP<br>address automatically                       |

### 3.2 APN Manual configuration

If not attached automatically, could configure correct APN setting.

| AT Command                       | Response                   | Description          |
|----------------------------------|----------------------------|----------------------|
| AT+CFUN=0                        | +CPIN: NOT READY<br><br>OK | Disable RF           |
| AT+MCGDEFCONT<br>="IP","cmnbiot" | OK                         | Set the APN manually |

|              |                                                        |                                                     |
|--------------|--------------------------------------------------------|-----------------------------------------------------|
| AT+CFUN=1    | OK                                                     | Enable RF                                           |
|              | +CPIN: READY                                           |                                                     |
| AT+CGREG?    | +CGREG: 0,1                                            | Inquiry PS service                                  |
|              | OK                                                     |                                                     |
| AT+CGCONTRDP | +CGCONTRDP:<br>1,5,"cmnbiot","100.80.73.123.255.255.0" | Attached PS domain and got IP address automatically |
|              | OK                                                     |                                                     |

## 4 MQTT Service

### 4.1 MQTT Connect to a general MQTT server

| AT Command                                       | Response                                             | Description                                                                       |
|--------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------|
| AT+CMQNEW=""test.mosquitto.org","1883",12000,100 | +CMQNEW: 0<br><br>OK                                 | Create MQTT connection<br>If succeed, MQTT id will return                         |
| AT+CMQCON=0,3,"myclient",600,0,0                 | OK                                                   | Send MQTT request                                                                 |
| AT+CMQSUB=0,"mytopic",1                          | OK                                                   | send subscribe topic                                                              |
| AT+CMQPUB=0,"mytopic",1,0,0,8,"31323334"         | OK<br><br>+CMQPUB:<br>0,"mytopic",1,0,0,8,"31323334" | Public topic and message<br><br>Got subscribed topic and message down from server |
| AT+CMQUNSUB=0,"mytopic"                          | OK                                                   | Unsubscribe topic                                                                 |
| AT+CMQDISCON=0                                   | OK                                                   | Disconnect MQTT connection with id                                                |

### 4.2 MQTT Connect Aliyun

| AT Command                                                                        | Response             | Description                                                                                                                                               |
|-----------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| AT+CMQNEW="productKey.iot-as-mqtt.cn-shanghai.aliyuncs.com",<br>"1883",12000,1024 | +CMQNEW: 0<br><br>OK | Create TCP connection<br>If succeed, MQTT id will return                                                                                                  |
| AT+CMQALICFG=0,"productKey","deviceName","deviceSecret"                           | OK                   | Set the Alibaba Cloud device parameters, productkey, deviceName, and deviceSecret. These three parameters can be obtained from the Alibaba Cloud website. |

|                                                                        |    |                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AT+CMQALICON=0,600,1                                                   | OK | Send MQTT request to connect Aliyun.                                                                                                                                                                                                                                                          |
| AT+CMQSUB=0,"/productKey/deviceName/TEST1",1                           | OK | To subscribe to a topic, you need to subscribe to create this topic in the TOPIC list on the Alibaba Cloud device and give the device permissions for publishing and subscribing. Note that productKey and deviceName need to be replaced with these two values for the corresponding device. |
| AT+CMQPUB=0,"/productKey/deviceName/TEST1",1,0,0,16,"3132333435363738" | OK | Public topic and message                                                                                                                                                                                                                                                                      |
| +CMQPUB:0,"/productKey/deviceName/TEST1",1,0,0,16,"3132333435363738"   |    | Got subscribed topic and message down from server                                                                                                                                                                                                                                             |
| AT+CMQUNSUB=0,"/productKey/deviceName/TEST1"                           | OK | Unsubscribe topic                                                                                                                                                                                                                                                                             |
| AT+CMQDISCON=0                                                         | OK | Disconnect MQTT connection with id                                                                                                                                                                                                                                                            |

## 5 MQTT with SSL

### 5.1 Connect using AT+CSETCA to set the certificate

| AT Command                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Response | Description                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| First Package:<br>AT+CSETCA=0,1312,1,0,"-----BEGIN<br>CERTIFICATE-----\r\nMIIDqjCCApKgAwIBAgIJAIImRX1<br>D4JhMMA0GCSqGSIb3DQEBAQUAMGoxFzAVBgNVB<br>AMMDkFuE1RVFQgYnJva2VyMRYwFAYDVQQKDA1Pd<br>25UcmFja3Mub3JnMRQwEgYDVQQLDAtnZW5lcmF0<br>ZS1DQTEhMB8GCSqGSIb3DQEJARYSbm9ib2R5QGv4<br>YW1wbGUubmV0MB4XDTE4MDgwMTA5NTIzMloXD<br>TMymDcyODA5NTIzMlowajEXMBUGA1UEAwwoQW<br>4gTVFUVCBicm9rZXIxFjAUBGNVBAoMDU93blRyYWN<br>rcy5vcmcxFDASBgNVBAsMC2dlbmVyYXRILUNBMSEw<br>HwYJKoZIhvcNAQkBFhJub2JvZlIAZXhhbXBsZS5uZXQ<br>wgGEiMA0GCSqGSIb3DQEBQUAA4IBDwAwggEKAoI<br>BAQDBdvA5HF8hcvvZKCQjCezZQPPpZHUcqSQQCTcpJ<br>nC2kb5DvA2EVnZ6bLKBtcfkv+40AZK3VXWoof0dmZw | OK       | Use the "AT+CSETCA"<br>command to set the server<br>certificate<br>The first parameter 0<br>represents the server<br>certificate set.<br>The second parameter 1312<br>represents the length of the<br>server certificate.<br>The third parameter 1<br>indicates that there is still<br>unpacking data to be sent<br>later, and if 0, it is the last<br>packet. |



```
hY1XTgxVMLxFeQwp9eW5h2UnDS278qcQsT93z9RZf
Vi7jyCc0eS6DQaMOLuKMefYM8dYYN73PWWTZeJtRm
Bp8PrDlk/6xXqGFIIZgKRMboNjNc1HXD/7Cv0l27WYag
oRsArHC2rdoS+soxa+i9Cvdbp0dpjYnly6sNDV5mST2N
nK/tNtMiFQRKv1XWSRosGlyJxaHK6sEuFqspoC71IJzq
7lznOgxbe8v8Zyya2zXczCR4h05Kjf4vpLift3oWgxaD10
ZAgMBAAGjUzBRMB0GA1UdDgQWBBSHCqK2sT9GrZ
0n59l8b7Btm9laPTAfBgNVHSMEGDAWgBSHCqK2sT9
GrZ0n59l8b7Btm9laPTAPBgNVHRMBAf8EBTADAQH/
MA0GCSqGSib3DQEBDQUAA4IBAQA8tYQuZ9rr3T7Q
c+jiIK7yVtT5dSTyOOWYNjNBMD4l8DXadWpSeuj36"
```

Second Package:

```
AT+CSETCA=0,1312,0,0,"qfwTpSdAtMoJcUv2oAxAwN
9dSVkHxgfsdv1j/O6nstC4cErYfT6/pd603V+Fr+b+idk/
0LdxzhJfYII3uYVnKZRarcPu0n1WAF0xDIpxAmXrDoz
CD4mHpOIIP/F8TFbDIMigYz+QOPC+32KJZLq+MRnz0
DxGPsQ+z0NL/IRFmhwYkirncwhRdomeC+SePmL15TC
Q1YSzr/iSaYWMG55N0KqJdfY43xNuDL+kFT3PUQXb4
1Q4E/0+ChnAgs681lc+TVDceD6RPnHjGnyFikjXLwW5
eNth9-----END CERTIFICATE-----" OK
```

First Package:

```
AT+CSETCA=1,1520,1,0,"-----BEGIN
CERTIFICATE-----\r\nMIIERjCCAy6gAwIBAgIJAJUEubEo
Kmu2MA0GCSqGSib3DQEBDQUAMGoxFzAVBgNVBA
MMMDkFuE1RVFQgYnJva2VyMRyWfAYDVQQKDA1Pd2
5UcmFja3Mub3JnMRQWEgYDVQQLDAtnZW5lcmF0ZS
1DQTEhMB8GCSqGSib3DQEJARYSbm9ib2R5QGv4Y
W1wbGUubmV0MB4XDTE4MDgwMTA5NTc0NloXDT
MyMDcyODA5NTc0NlowEzERMA8GA1UEAwwlXljbG
llbnQwggEiMA0GCSqGSib3DQEBQUAA4IBDwAwggE
KAoIBAQcVekXoe2dkjuc1LMKQmwLELr175K+sKsdJ3
Nyld/mwPr+Ls8esJPgtEwS7zcPKczl0P5oVhepGNmkp4
Ti+9Xy5UcbU3lPjCnzFdvDUwg64fsByrRyE0T8NP0Kw+
0g0XBwX/3s/yg8k3SmXcp54+uoujRnTdtBbgiNbdTKyT
394d9nxVBRHeo5YmHi3GN8KRL7lujC6LB6sNokepm
WDRt5orc3shJ0Hk6pNEdQpo4vt4A/ISiMB89JPpq8x3f
4c+bnWNIUGujcWJBdgvYfxXnoM5odQU+wbmEEZl4+
16BN0obFxiYtrOHs+Xk6+CWl3/4/bXb9FtQE1LQMyp
wdDJfq7AgMBAAGjggFEMIIBQDAMBgNVHRMBAf8EA
jAAMAKGA1UdEQQCMAAwEQYJYIZIAyb4QgEBBAQD
AgWgMB0GA1UdJQQWMBQGCCsGAQUFBwMCGbgr
BgEFBQcDBDALBgNVHQ8EBAMCA6gwKAYJYIZIAyb4Q
gENBBsWGUNsaWVudCBCcm9rZXlqQ2VydGlmaWNh OK
```

The fourth parameter 0 indicates that the certificate input mode is string format. If it is 1, it indicates that it is HEX format.

The last parameter is the contents of the server certificate. The maximum length of each packet is 1000. If it exceeds 1000, it needs to be sent by packet. The length of this server certificate is 1312. It needs to be sent in two packets. The length of one packet is 1000, and the length of one packet is 312.

Use the "AT+CSETCA" command to set the client certificate

The first parameter 1 indicates that the client certificate is set.

The second parameter 1520 represents the length of the client certificate.

The third parameter 1 indicates that there is still unpacking data to be sent later, and if 0, it is the last packet.

The fourth parameter 0 indicates that the certificate input mode is string format. If it is 1, it indicates that it is HEX format.

The last parameter is the content of the client certificate. The maximum length of each packet is 1000.



dGUwHQYDVR0OBByEFGleIFUhsSWR25+eXsStFlgYt4  
OMMIGcBgNVHSMegZQwgZGAFKEKoraxP0atnSfn2Xx  
vsG2b0ho9oW6kbDBqMRcwFQYDVQDDA5BbiBNU  
VRUIGJyb"

Second Package:

AT+CSETCA=1,1520,0,0,"2tlcjEWMBQGA1UECgwWNT3  
duVHJhY2tzLm9yZzEUMBIGA1UECwwLZ2VuZXJhdGU  
tQ0ExITAFBgkqhkiG9w0BCQEWEm5vYm9keUBleGFtc  
GxILm5ldlIJAIIlRX1D4JhMMA0GCSqGSIb3DQEEDQU  
AA4IBAQA5a1nn4JxCF7TsSPSYDlxvYgJ3MIucfjGQFWj  
zsNvhrAotBfuS2KPCxmo/350otqTHqISfy3upTAgMJire  
AzVigZaVneMxS8GHAMzezlaittuxZRAO6jYUfn03OkX/  
3MgssJxa81/5M6+OpQdDNKK2iFmUjwf+iGjGVE9Kps  
KLimW0TD9WBLfPCO7d20WQmg4+UM9I+xxp3CAmk  
dD+FGQnBz7Zd2Js2MJ/QWD7ZEeOu++oT4/xq+rVzGy  
xYuqnJbQWP/oayfEJn3rtm5jniAA2xEykqPnk3rm9KNV  
zvlbHmDQxTcA774mlcvc4VILgJW2k9LnyCjYsAEp3blb3  
D5Lp-----END CERTIFICATE-----"

OK

If it exceeds 1000, it needs to be sent in packets. The length of this client certificate is 1520. It needs to be sent in two packets. The length of one packet is 1000, and the length of one packet is 520.

First Package:

AT+CSETCA=2,1656,1,0,"-----BEGIN RSA PRIVATE  
KEY-----\r\nMIIEpAIBAAKCAQEArcCl6HtnZI7nNSzCkJs  
Cx69e+SvrCrHSdzciHf5sD6/i7PHrCT4LRMEu83DynM  
5dD+aFYXqRjZpKeEyPvV8uVHG1NyKYwp8xXbw1MIO  
uH7Acq0chNE/DT9CsPtINFwcF/97P8oPJN0pl3KeePrq  
Lo0Z03bQW4ljW3Uysk9/eHfZ8VQUR3qOWJh4txjfCkS  
+5bowuiwerDaJHqZlg0beaK3N7ISdB5OqTRHUKaOL7  
eAPyEojAfPST6avMd3+HPm7zViFBro3FiQXYL2BcV56  
DOaHUFPSG5hBGZePtegTdkGxcYmLazh7PI5Ovglot/+  
P212/RbUBNS0DMj8HQYX6uwIDAQABAoIBAQCUAL  
iwOGCZEYX8IV1F3fZP+K2EXprRadCTNStEzEmzYXGp/  
ERghgukzuXQrhaOdvC6dpsg9CyF2IFI/wEuin9yqMcZ  
m8gmEcv8gRc+srTM2WkDbJknzp9CpRpZ6d9jLm7mC  
Qso7j143w8K4zKnubJAEVrP7GbC4S013pKwWb1Aoh  
nFKkXyVpNLEk2Dh8WkqGAPSp7WDFD8ryBRAEpDU  
hKolFRmV71q+Y4JGqkwRrRAn3S/2JhvX29/xqi95oTPk  
LOULMQIj0vP2tGtTY7Djr1bb3FeY4a/dfz93nNUgutX1  
1du2MPYJRyRfB97gNac8XMMmqO+i5lrxGGmPw8EYlx  
AoGBANYMBUBcR92ZVihNqvNe/WUzn0edBtKpdjdr1  
6FTA7iag!RuRltwLVyq9dRIbe0YnywEPsDhaUGauo5W  
98f3MpzD/MPn3DmGgI6+ZHIB/hthkPb+tcuGNt0fhKZ  
xgdKHaz9JDIF7vQHqngqVMMWSg798Rbl68ZBx4NK  
aRyYmAUAoGBANFgrY4jiZ5yoMZjZsfNdQYja02as4d5  
QjMZ1YwPkSkDy9HdUkwMvjLyll+d5MR152xP5KimY"

OK

Use the "AT+CSETCA" command to set the client KEY. The first parameter 2 indicates that the client KEY is set. The second parameter 1656 represents the length of the client KEY. The third parameter 1 indicates that there is still unpacking data to be sent later, and if 0, it is the last packet. The fourth parameter 0 indicates that the client KEY is in string format. If it is 1, it indicates that it is HEX format. The last parameter is the client KEY content. The maximum length of each packet is 1000. If it exceeds 1000, it needs to be sent in packets. The length of this client KEY is 1656, which needs to be sent in two packets. The length of one

Second Package:

AT+CSETCA=2,1656,0,0,"kHnL4o+V9oRM82hGVJeH4  
KVIW2r0JBglm7QzeHXiykMVRIO3SWP+gj65D7NzFBw  
0Fyw3MXy+GGwQZAm3k9av7HbIMWdnRecECHAoG  
AlGmJkgInSIMjbdB1Bo1nyZ9biziYA+J9gD7wVBmCAR5  
C5g4cixDdjZ7FwvfpAXItCDIMGGKJOclgXpWEx98C5wl  
2kGPX0U4wwWzLQIFgHT1U+IHvrXYRcMKJD7s4cWzY  
LKKfH6Q7XvCaPB+DptVFOafyJgS2zzq+v37RE+d3fbECg  
YEAghK3f1gghKjdrKHQFkxTaQ7T+JAK/AKe17Qy8Clzof  
FTy/rcx6YBYwFF3fzvRAWjUayIdyV2Yyqvm4tE8LqMFN  
bfhTURf+vW+oK1eknLGsWVSof0P3N5md7wcLtu1D6  
Md7M5ZIZgUOaE+ZkMWe0nOUU10ToQoFsv1Hg9+qk  
4vz0CgYAOaPbpuTXbPViDo1uL11Mt4UdlnfdgzL4jpnV  
Fus3SAJue9wrrKFclRU5vb3irDRZ0d9Tewf+fT2g5x5xF  
AeSIVJeEWijk0ddDz9yOhnr6M7jneuzvuVBUQ/E5Q+S  
45XXkBTwUdCOPfbuMJPkYijWseh0VGvpOyuPyV9tcn  
NVZ5Q=====END RSA PRIVATE KEY-----"

packet is 1000, and the length  
of one packet is 656.

|                                                     |                                                   |                                                           |
|-----------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------|
| AT+CMQTTSNEW="117.131.85.139","6001",60000,1<br>024 | +CMQTTSNEW: 0<br>OK                               | Create MQTT connection<br>If succeed, MQTT id will return |
| AT+CMQCON=0,3,"simcom",600,1,0                      | OK                                                | Send MQTT request                                         |
| AT+CMQSUB=0,"mytopic",1                             | OK                                                | send subscribe topic                                      |
| AT+CMQPUB=0,"mytopic",1,0,0,10,"3132333439"         | OK                                                | Public topic and message                                  |
|                                                     | +CMQPUB:<br>0,"mytopic",1,0,0,1<br>0,"3132333439" | Got subscribed topic and<br>message down from server      |
| AT+CMQUNSUB=0,"mytopic"                             | OK                                                | Unsubscribe topic                                         |
| AT+CMQDISCON=0                                      | OK                                                | Disconnect MQTT connection<br>with id                     |

## 5.2 Long command to create an MQTT with SSL instance

| AT Command                                                                                                                                                                                                                                                                                                                                                                            | Response | Description                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| First Package:<br>AT+CMQTTSNEWEXT=1,9284,1000,"117.131.85.13<br>9,6001,12000,1024,2700,2d2d2d2d424547494e<br>2043455254494649434154452d2d2d2d0d0a4d4<br>94944716a434341704b67417749424167494a4149<br>496d52583144344a684d4d4130474353714753496<br>23344514542445155414d476f78467a415642674e<br>560d0a42414d4d446b46754945315256465167596<br>e4a76613256794d525977464159445651514b4441 | OK       | Multi-packages create MQTT<br>with SSL instances, where the<br>server certificate package, client<br>certificate package, and client<br>key package are split into 10 AT<br>command packets for<br>transmission. |

```
315064323555636d466a61334d7562334a6e4d525
177456759440d0a5651514c4441746e5a57356c63
6d46305a533144515445684d42384743537147534
962334451454a41525953626d3969623252355147
563459573177624755750d0a626d56304d4234584
45445344d4467774d5441354e54497a4d6c6f5844
544d794d4463794f4441354e54497a4d6c6f77616a
45584d425547413155454177774f0d0a515734675
456465556434269636d39725a584978466a415542
674e5642416f4d44553933626c527959574e72637
93576636d63784644415342674e564241734d0d0a
4332646c626d56795958526c4c554e424d5345774
877594a4b6f5a496876634e41516b4246684a7562
324a765a486c415a586868625842735a5335755a5
851770d0a676745694d4130474353714753496233
445145424151554141344942447741776767454b4
16f49424151444264764135484638686376765a4b
"
```

Second Package:

```
AT+CMQTTTSNEWEXT=1,9284,1000,"43516a43657a
5a0d0a515070507a48556371535151435463704a6
e43326b62354476413245566e5a36624c4b425463
666b762b3430415a4b335658576f6f6630646d5a77
68593158540d0a6778564d4c78466551777039655
7356832556e4453323738716351735439337a3952
5a665669376a794363306553364451614d4f4c754
b4d6566594d386459590d0a4e3733505756545a65
6a74526d4270385072446c6b2f367858714746494
95a674b524d626f4e6a4e63314858642f374376306
c3237575961676f5273417248430d0a3272646f532
b736f78612b693943766462703064706a596e6c59
36734e4456356d5354324e6e4b2f744e744d69465
1524b7631585753526f73476c794a7861480d0a4b
36734575467173706f433731494a7a71376c7a6e4f
677862653876385a797961327a58637a435234683
0354b6a663476704c496674336f57677861443130
5a0d0a41674d424141476a557a42524d423047413
15564446751574242536843714b3273543947725a
306e35396c38623742746d3949615054416642674
e5648534d450d0a474441576742536843714b3273
543947725a306e35396c38623742746d394961505
4415042674e5648524d4241663845425441444151
482f4d413047435371470d0a53496233445145424
```

The first parameter: 1 means that there is still unpacked data to be sent later; 0 means the last packet of data.

The second parameter: the total length of the multi-package data, here  
 $9284=1000+1000+1000+1000+1000+1000+1000+1000+284$

The third parameter: indicates the data length of the current unpacking command, that is, the length of the content in the quotation marks.

The fourth parameter: 117.131.85.139 is the mqttts server address

The fifth parameter: 6001 is the mqttts server port number

The sixth parameter: 12000 is the set timeout time

The seventh parameter: 1024 is the bufsize for sending and receiving.

The eighth parameter: 2700 is the length of the server certificate, here is the HEX format.

The ninth parameter: the contents of the server certificate, which includes:

1) The server certificate part of the first packet data of AT+CMQTTTSNEWEXT "2d2d2d....65a4b"

45155414134494241514138745951755a39727233

"

Third Package:

AT+CMQTTTSNEWEXT=1,9284,1000,"543751632b6a  
6a494b377956745435645354794f4f57594e6a4e42  
4d443449384458610d0a6457705365756a3336716  
6775470536441744d6f4a635576326f417841574e3  
96453566b48786766736476316a2f4f366e7374433  
4634572596654362f7064360d0a3033562b46722b  
622b69646b2f304c64787a684a6659496c33755956  
4e4b5a72526172635075306e31574146307844497  
078416d5872446f7a4344346d48704f0d0a6c49502  
f463854466244494d6967795a2b514f50432b33324  
b4a5a4c712b4d526e7a304478475073512b7a304e  
4c2f6c52466d6877596b69726e63776852646f0d0a  
6d65432b5365506d4c31355443513159537a722f6  
9536159574d4735354e304b714a6466593433784e  
75444c2b6b465433505551586234315134452f302  
b43680d0a6e41677336383149632b545644636544  
3652506e486a49476e7946696b6a584c775735654  
e7448390d0a2d2d2d2d454e4420434552544946  
49434154452d2d2d2d2d,3128,2d2d2d2d2d42454  
7494e2043455254494649434154452d2d2d2d0d  
0a4d494945526a434341793667417749424167494  
a414a55457562456f4b6d75324d41304743537147  
5349623344514542445155414d476f78467a41564  
2674e560d0a42414d4d446b467549453152564651  
67596e4a76613256794d525977464159445651"

OK

Forth Package:

AT+CMQTTTSNEWEXT=1,9284,1000,"514b44413150  
64323555636d466a61334d7562334a6e4d5251774  
56759440d0a5651514c4441746e5a57356c636d46  
305a533144515445684d423847435371475349623  
34451454a41525953626d39696232523551475634  
59573177624755750d0a626d56304d42345844544  
5344d4467774d5441354e5463304e6c6f5844544d  
794d4463794f4441354e5463304e6c6f77457a4552  
4d41384741315545417777490d0a62586c6a62476  
c6c626e5177676745694d41304743537147534962  
33445145424151554141344942447741776767454  
b416f494241514376454b586f6532646b0d0a6a756  
3314c4d4b516d774c454c723137354b2b734b7364

OK

2) The second packet data  
content of AT+CMQTTTSNEWEXT  
"43516a... 727233"

3) The server certificate part of  
the third package data of  
AT+CMQTTTSNEWEXT is  
"543751... 2d2d2d2d"

The 10th parameter: the length  
of the client certificate, here  
3218, in the third packet of  
AT+CMQTTTSNEWEXT data.

The eleventh parameter: the  
contents of the client certificate,  
which includes:

1) The client certificate part in  
the third packet data of  
AT+CMQTTTSNEWEXT is  
"2d2d2d2d2d4245474....  
445651"

2) The 4th packet data content of  
"AT+CMQTTTSNEWEXT"  
"514b44... 677659"

3) The 5th package data content  
of "AT+CMQTTTSNEWEXT"  
"467858... 55426c"

4) The content of the client  
certificate in the 6th package  
data of AT+CMQTTTSNEWEXT is  
"654746... 54452d2d2d2d2d"

The 12th parameter: the length  
of the client key, here 3408, in  
the 6th packet data of  
AT+CMQTTTSNEWEXT.

The 13th parameter: the  
contents of the client key, which  
includes:

1) The client key part of the 6th  
packet data of  
AT+CMQTTTSNEWEXT is  
"2d2d2d2d2d424547.... 445651"

4a334e7949642f6d7750722b4c733865734a50677  
4457753377a63504b637a6c3050356f5668657047  
0d0a4e6d6b703454492b395879355563625533497  
06a436e7a46647644557767363466734279725279  
453054384e50304b772b306730584277582f33732f  
7967386b0d0a33536d58637035342b756f756a526  
e546474426267694e6264544b795433393464396e  
7856425248656f35596d486933474e384b524c376  
c756a43364c4236730d0a4e6f6b65706d574452743  
56f72633373684a30486b36704e456451706f34767  
434412f4953694d4238394a507071387833663463  
2b62764e57495547756a63570d0a4a4264677659"

2) The data content of the 7th  
package of AT+CMQTTTSNEWEXT  
"537a43... 80d0a4b"  
3) The 8th packet data content of  
"AT+CMQTTTSNEWEXT"  
"347a4b... 4267496d"  
4) The data content of the 9th  
package of AT+CMQTTTSNEWEXT  
"654746... 54452d2d2d2d2d"  
5) The 10th packet data content  
of "AT+CMQTTTSNEWEXT"  
"306439... 2d2d2d2d2d2d"

Fifth Package:

AT+CMQTTTSNEWEXT=1,9284,1000,"4678586e6f4d  
356f6451552b77626d45455a6c342b3136424e306f  
624678695974724f48732b586b362b435769332f3  
42f6258623946745145310d0a4c514d7950776444  
4a66713741674d424141476a676746454d4949425  
144414d42674e5648524d4241663845416a41414d  
416b4741315564455151434d4141770d0a4551594  
a59495a4941596234516745424241514441675767  
4d423047413155644a5151574d425147434373474  
151554642774d434267677242674546425163440d  
0a4244414c42674e564851384542414d434136677  
74b41594a59495a49415962345167454e42427357  
47554e736157567564434243636d39725a5849675  
13256790d0a64476c6d61574e6864475577485159  
445652304f4242594546474965694655487353575  
232352b65587353744649675974344f4d4d494763  
42674e5648534d450d0a675a5177675a4741464b4  
54b6f726178503061746e53666e32587876734732  
6230686f396f57366b624442714d52637746515944  
56515144444135426269424e0d0a5556525549474  
a796232746c636a45574d42514741315545436777  
4e5433647556484a685932747a4c6d39795a7a455  
54d424947413155454377774c5a3256750d0a5a58  
4a6864475574513045784954416642676b71686b6  
9473977304243514557456d3576596d396b655542  
6c"

OK

Sixth Package:

AT+CMQTTTSNEWEXT=1,9284,1000,"654746746347  
786c4c6d356c6449494a4149496d0d0a525831443

OK

44a684d4d41304743537147534962334451454244  
515541413449424151413561316e6e344a7843463  
7547353505359446c787659476a334d4975630d0a  
666a475146576a7a734e766872416f74426675533  
24b5043786d6f2f3335306f74715448716c5366793  
375705441674d4a697265417a5669675a61566e65  
4d780d0a53384748414d7a657a6c6169747475785  
a52414f366a5955666e30334f6b582f334d6773734  
a786138312f354d362b4f705164444e4b4b3269466  
d556a77662b0d0a69476a475645394b70734b4c69  
6d573054443957424c6650434f3764323057516d6  
7342b554d396c2b7878703343416d6b64442b4647  
516e427a375a64324a730d0a324d4a2f515744375  
a45654f752b2b6f54342f78712b72567a477978597  
5716e4a625157502f6f617966454a6e3372746d356  
a6e694141327845796b71506e6b0d0a33726d394b  
4e567a766c62486d4451785463413737346d49637  
6633456494c676a57326b394c6e79436a59734145  
7033626c623344354c700d0a2d2d2d2d454e442  
043455254494649434154452d2d2d2d2d,3408,2d2  
d2d2d2d424547494e205253412050524956415445  
204b45592d2d2d2d0d0a4d49494570414942414  
14b43415145417278436c3648746e5a49376e4e"

Seventh Package:

AT+CMQTTTSNEWEXT=1,9284,1000,"537a436b4a73 OK  
4378433639652b53767243724853647a636948663  
57344362f693750480d0a724354344c524d457538  
3344796e4d3564442b6146595871526a5a704b654  
5795076563875564847314e794b59777038785862  
77314d494f75483741637130630d0a684e452f4454  
3943735074494e467763462f393750386f504a4e30  
706c334b65655072714c6f305a303362515734496a  
57335579736b392f6548665a385651550d0a52337  
14f574a683474786a66436b532b35626f777569776  
57244614a48715a6c67306265614b334e37495364  
42354f71545248554b614f4c3765415079456f6a0d  
0a41665053543661764d64332b48506d377a56694  
642726f3346695158594c324263563536444f61485  
546507347356842475a655074656754644b477863  
596d4c0d0a617a6837506c354f76676c6f742f2b50  
3231322f526255424e5330444d6a3848517958367  
577494441514142416f494241514355414c456977  
4f47435a4559580d0a384956314633665a502b4b3



24558707252616443544e5374457a456d7a595847  
702f4552476867756b7a7558517268614f64764336  
64707367394379463249460d0a492f774575696e3  
979714d635a6d38676d456376386752632b737254  
4d32576b44624a6b6e7a7039437052705a3664396  
a4c6d376d4351736f376a31343377380d0a4b"

Eighth Package:

AT+CMQTTTSNEWEXT=1,9284,1000,"347a4b6e7562 OK  
4a4145567250374762433453303133704b7757623  
1416f686e464b6b587956704e4c45786b32446838  
576b71474150537037574466443872790d0a62524  
145704455684b6f6c66526d563731712b59344a47  
716b77527252416e33532f324a68765832392f7871  
6939356f54506b4c4f554c4d51496a30765032740d  
0a4774545937446a723162623346655934612f646  
67a39336e4e556775745831316475324d50594a52  
797246623937674e616338584d4d714f2b6935497  
87247470d0a6d50773845596c78416f4742414e59  
4d425542635239325a5649684e71764e652f57557  
a6e30656442744b50646a64723136465441376961  
676c5275524974770d0a4c5679713964526c62653  
0596e7977455053446861554761756f3557393866  
334d707a442f4d506e33446d476749362b5a486c4  
22f6874686b50622b746375470d0a4e743066684b  
5a7867644b48617a394a449464637765148716e7  
16777564d57536737393852624936385a4278344e  
4b615279596d415574416f4742414e46670d0a725  
9346a695a35796f4d5a6a5a73664e6451596a61303  
26173346435516a4d5a315977506b536b44793948  
64556b776d566a4c796c6c2b64354d52313532785  
00d0a354b696d596b4a486e4c346f2b56396f524d3  
8326847564a6548344b5649573272304a4267496d  
"

Ninth Package:

AT+CMQTTTSNEWEXT=1,9284,1000,"37517a654858 OK  
69796b4d56526c30335357502b676a363544370d0  
a4e7a46427730467977334d58592b474777515a41  
6d336b396176374862494d57646e5265634543484  
16f474149476d4a6b676c6e53494d6a6264423142  
6f316e0d0a795a3962697a6959412b4a396744377  
756426d434172354335673463697844646a5a3746  
777666704158497443446c4d47474b4a30636c675

8705745783938430d0a357749326b475058305534  
7777577a4c51694667485431552b6c48767258595  
2634d4b4a4437733463577a594c4b6b6648365137  
5876436150422b44707456460d0a4f6166796a675  
3327a7a712b76333752452b643366624543675945  
4167684b3366316767684b6a64724b4851466b785  
4615137542b4a416b2f414b65313751790d0a3843  
497a6f664654792f7263783659425977464633667a  
765241576a5561794964795632595971766d34744  
5384c714d464e626668545552662b76572b6f4b31  
0d0a656b6e4c47735756536f663050334e356d643  
777634c74753144364d64374d355a495a67554f61  
452b5a6b4d5765306e4f55556c30546f516f467376  
314867390d0a2b716b34767a30436759414f61506  
27075545862505669446f31754c31314d74345564  
6c6e6664677a4c346a706e564675733353414a756  
5397772724b46636c0d0a52553576623369724452  
5a"

#### Tenth Package:

AT+CMQTTTNEWEXT=0,9284,284,"3064395465776  
62b6654326735783578464165536c564a65455749  
6a6b306464447a39794f686e72364d376a6e65757  
a76755642550d0a512f4535512b53343558586b42  
54775564434f706662754d4a704b59696a5773656  
830564776704f79755079563974636e4e565a3551  
3d3d0d0a2d2d2d2d454e4420525341205052495  
6415445204b45592d2d2d2d2d"

+CMQTTTNEWEXT:

The long command creates an MQTT with SSL instance successfully. If it fails, it will return error.

0

OK

|                                             |                                                   |                                                   |
|---------------------------------------------|---------------------------------------------------|---------------------------------------------------|
| AT+CMQCON=0,3,"simcom",600,1,0              | OK                                                | Send MQTT request                                 |
| AT+CMQSUB=0,"mytopic",1                     | OK                                                | send subscribe topic                              |
| AT+CMQPUB=0,"mytopic",1,0,0,10,"3132333439" | OK                                                | Public topic and message                          |
|                                             | +CMQPUB:<br>0,"mytopic",1,0,0,1<br>0,"3132333439" | Got subscribed topic and message down from server |
| AT+CMQUNSUB=0,"mytopic"                     | OK                                                | Unsubscribe topic                                 |
| AT+CMQDISCON=0                              | OK                                                | Disconnect MQTT connection with id                |

## Contact

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