



SIM7020 Series_CoAP_Application Note

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About Document

Document Information

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Revision	Date	Owner	Status / Comments
1.00	April 10, 2018	Linshu Guan	First Release.
1.01	June 7, 2018	Albert Meng	Revised
1.02	May 10, 2019	Wenjie.lai	Change CoAP Connection and Service

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 CoAP application process.

Developers could understand and develop application quickly and efficiently based on this document.

2 CoAP Introduction

In the IoT application, there is a network between the device and the device, and they need to communicate with each other. However, because IoT devices are usually resource-constrained, limited CPU capacity, limited RAM, limited flash, and limited network bandwidth, the CoAP (Constrained Application Protocol) protocol borrows the HTTP protocol mechanism and simplifies for such special scenarios. The protocol Packet format. The communication between IoT devices is succinctly realized.

CoAP protocol features:

- 1) Based on message model, four message types are defined, and the message is the data communication carrier, and the data communication between devices is realized by exchanging network messages.
- 2) The operation of the CoAP Server cloud device resource is completed by the request and response mechanism. Similar to HTTP, the device can operate the server resource through four request methods (GET, PUT, POST, DELETE). The request and response packets are placed in the CoAP message for transmission.
- 3) Message-based two-way communication (M2M), both the CoAP Client and the CoAP server can send requests to each other independently. Both parties can be in the client or server role.
- 4) The protocol packet is lightweight and has a minimum length of only 4B.
- 5) Support reliable transmission, data retransmission, block transmission. Ensure that data arrives reliably
- 6) Support IP multicast, which can send requests to multiple devices at the same time (such as CoAP client search for CoAP Server)
- 7) Non-long connection communication for low power IoT scenarios.

3 Bearer Configuration

Usually module will register PS service automatically.

3.1 PDN Auto-activation

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

4 CoAP Connection and Service

AT Command	Response	Description
AT+CCOAPNEW="10.161.11.104", 5683,1	+CCOAPNEW: 1 OK	Create client instance If succeed, client instance id will return
AT+CCOAPSEND=1,12,"400141C7 B7636F756E746572"	OK +CCOAPNMI: 1,11,"60457233c02105ff303234"	Send hex data to server And got data from server
AT+CCOAPCSEND=1,1,0,0,1,,"B76 36F756E746572",,	OK +CCOAPNMI: 1,11,"60457233c02105ff303234"	Send hex data to server And got data from server
AT+CCOAPDEL=1	OK	Release Client instance

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