BC26 CMDMP
Application Note

LPWA Module Series

Rev. BC26_CMDMP_Application_Note_V1.0

Date: 2019-07-02

Status: Released

Our aim is to provide customers with timely and comprehensive service. For any assistance, please contact our company headquarters:

Quectel Wireless Solutions Co., Ltd.
Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233
Tel: +86 21 5108 6236
Email: info@quectel.com

Or our local office. For more information, please visit:
http://www.quectel.com/support/sales.htm

For technical support, or to report documentation errors, please visit:
http://www.quectel.com/support/technical.htm
Or email to: support@quectel.com

About the Document

History

Revision	Date	Author	Description
1.0	2019-07-02	Randy LI/Koala LI	Initial

Contents

Table Index

1 Introduction

This document mainly introduces how to use AT commands to configure the parameters related to the access of China Mobile Device Management Platform (CMDMP).

CMDMP is used to manage terminal devices, collect terminal device information and handle events and alerts of terminal devices. For more detailed information on CMDMP, please contact China Mobile.

2 CMDMP Related AT Commands

2.1. AT+QDMPCFG   CMDMP Access Configuration

The command is used to configure and query CMDMP access information.

The read command is used to query the parameters currently used by module, which may not be identical with the saved configuration information.

The write command is used to save or erase configuration information, and all saved configuration information will take effect after reboot.

Please refer to *Chapter 3* for possible **<err>** values.

AT+QDMPCFG CMDMP Access Configuration	
Test Command **AT+QDMPCFG=?**	Response **+QDMPCFG: <type>[,<parameter1>[,<parameter2>[,<parameter3>[,<parameter4>]]]]** **OK**
Read Command **AT+QDMPCFG?**	Response **+QDMPCFG: 0,<dmMode>** **+QDMPCFG: 1,<serverIp>,<serverPort>,<updatePeriod>** **+QDMPCFG: 2,<appkey>,<password>,<tmlType>,<tmIMEI>** **OK**
Write Command **AT+QDMPCFG=<type>[,<parameter1>[,<parameter2>[,<parameter3>[,<parameter4>]]]]**	Response When **<type>**=0, 1, 2 or 5, and the command is executed successfully: **OK** When **<type>**=4, **<parameter1>**=0 and the command is executed successfully: **+QDMPCFG: 0,<dmMode>**

	OK When **\<type\>**=4, **\<parameter1\>**=1 and the command is executed successfully: **+QDMPCFG: 1,\<serverIp\>,\<serverPort\>,\<updatePeriod\>** **OK** When **\<type\>**=4, **\<parameter1\>**=2 and the command is executed successfully: **+QDMPCFG: 2,\<appkey\>,\<password\>,\<tmlType\>,\<tmIMEI\>** **OK** When **\<type\>**=6 and the command is executed successfully: **+QDMPCFG: 6,\<dmstate\>** **OK** If there is any error, response: **ERROR** Or **+CME ERROR: \<err\>**
Maximum Response Time	300ms

Parameter

\<type\>	Configure type.			
	0	Configure CMDMP access state		
	1	Configure CMDMP server address and update period		
	2	Configure CMDMP app key, private key, interface type and terminal IMEI		
	3	Reserved		
	4	Query saved configuration information from NVRAM		
	5	Erase saved configuration information from NVRAM		
	6	Query CMDMP access state.		
	\<type\>	**\<parameter1\>**	**\<parameter2\>**	**\<parameter3\>**	**\<parameter4\>**
	0	**\<dmMode\>**			
	1	**\<serverIp\>**	**\<serverPort\>**	**\<updatePeriod\>**	
	2	**\<appkey\>**	**\<password\>**	**\<tmlType\>**	**\<tmIMEI\>**
	3	**Reserved**			
	4	**\<queryOpt\>**			
	5	**\<eraseOpt\>**			

	6	**<dmstate>**
<dmMode>	CMDMP access mode.	
	0	Disable access to CMDMP
	<u>1</u>	Enable access to CMDMP
<serverIp>	CMDMP server IP address. The default server IP is 117.161.2.41.	
<serverPort>	CMDMP server port. The default server port is 5683.	
<updatePeriod>	Update period. Range: 300-4294966. Unit: seconds. The default update period is 86400s.	
<appkey>	App key. In write command, it should be marked with double quotation marks.	
<password>	Private key. In write command, it should be marked with double quotation marks. The private key only shows the first four characters.	
<tmlType>	Terminal type.	
	<u>0</u>	Interface
	1	Linux
	2	Android
<tmlIMEI>	Terminal device IMEI. The length should be 15-17 bytes.	
<queryOpt>	Saved configuration information query options.	
	0	Query saved CMDMP access mode.
	1	Query saved CMDMP server IP address, port and update period.
	2	Query saved APP key, private key, interface type and terminal IMEI.
	3	Reserved.
<eraseOpt>	Saved configuration information erasing options.	
	0	Erase saved CMDMP access mode.
	1	Erase saved CMDMP server IP address, port and update period.
	2	Erase saved APP key, private key, interface type and terminal IMEI.
	3	Reserved.
	4	Erase all above saved information.
<dmstate>	CMDMP access state.	
	0	DMP_INITIAL_STATE
	4	DMP_CONNECT_SUCCESS
	5	DMP_CONNECT_FAILED
	6	DMP_REG_SUCCESS
	7	DMP_REG_FAILED
	8	DMP_REG_TIMEOUT
	9	DMP_LIFETIME_TIMEOUT
	11	DMP_UPDATE_SUCCESS
	12	DMP_UPDATE_FAILED
	13	DMP_UPDATE_TIMEOUT

Example

//Query the current configuration information.
AT+QDMPCFG?

```
+QDMPCFG: 0,1
+QDMPCFG: 1,117.161.2.7,5683,420
+QDMPCFG: 2,M100000089,95Go****,1,863703030822519

OK
```

//Disable access to CMDMP.
AT+QDMPCFG=0,0
```
OK
```

//Query saved CMDMP access mode.
AT+QDMPCFG=4,0
```
+QDMPCFG: 0,0

OK
```

//Set CMDMP server IP address, port and update period. "117.161.2.7" is the CMDMP test server IP.
AT+QDMPCFG=1,117.161.2.7,5683,420
```
OK
```

//Query saved CMDMP server IP address, port and update period.
AT+QDMPCFG=4,1
```
+QDMPCFG: 1,117.161.2.7,5683,420

OK
```

//Set APP key, private key, interface type and terminal IMEI.
AT+QDMPCFG=2,"M100000089","95Go**",1,863703030822519**
```
OK
```

//Query saved APP key, private key, interface type and terminal IMEI.
AT+QDMPCFG=4,2
```
+QDMPCFG: 2,M100000089, 95Go****,1,863703030822519

OK
```

//Erase all saved information.
AT+QDMPCFG=5,4
```
OK
```

//Query CMDMP access state.
AT+QDMPCFG=6
```
+QDMPCFG: 6,6                          //Registered successfully.
```

OK

AT+QDMPCFG=6
+QDMPCFG: 6,11   //Updated successfully.

OK

2.2. AT+QDMPCFGEX   CMDMP Access Extended Configurations

The command is used to configure and query extended CMDMP access information, which is required for CMDMP v2.0.

The write command is used to save, read or erase configuration information. All configured parameters will take effect after reboot.

Please refer to *Chapter 3* for possible **<err>** values.

AT+QDMPCFGEX CMDMP Access Extended Configurations	
Test Command **AT+QDMPCFGEX=?**	Response **+QDMPCFGEX: <type>,<act>[,<parameter1>[,<parameter 2>[,<parameter3>,<parameter4>]]]** **OK**
Write Command **AT+QDMPCFGEX=<type>,<act>[,<par ameter1>[,<parameter2>[,<parameter 3>,<parameter4>]]]**	Response When **<act>**=0 or 2, and the command is executed successfully: **OK** When **<type>**=0, **<act>**=1 and the command is executed successfully: **+QDMPCFGEX: 0,<appInfo>** **OK** When **<type>**=1, **<act>**=1 and the command is executed successfully: **+QDMPCFGEX: 1,<mac>** **OK**

	When **<type>**=2, **<act>**=1 and the command is executed successfully: **+QDMPCFGEX: 2,<rom>,<ram>,<cpu>,<osSysVer>** **OK** When **<type>**=3, **<act>**=1 and the command is executed successfully: **+QDMPCFGEX: 3,<swVer>,<swName>** **OK** When **<type>**=4, **<act>**=1 and the command is executed successfully: **+QDMPCFGEX: 4,<volte>,<netType>,<account>,<phoneNum>** **OK** When **<type>**=5, **<act>**=1 and the command is executed successfully: **+QDMPCFGEX: 5,<location>** **OK** If there is any error, response: **ERROR** Or **+CME ERROR: <err>**
Maximum Response Time	300ms

Parameter

<type>	Configuration type.	
	0	Configure terminal application information.
	1	Configure terminal MAC address.
	2	Configure terminal ROM, RAM, CPU and operation system version information.
	3	Configure terminal software version and name.
	4	Configure terminal VoLTE state, network type, broadband account and phone number.
	5	Configure terminal location information.
<act>	Action mode.	
	0	Save information to the module.

         1   Read information from the module.

         2   Erase information from the module.

\<type\>	**\<act\>**	**\<parameter1\>**	**\<parameter2\>**	**\<parameter3\>**	**\<parameter4\>**
0	0	**\<appInfo\>**			
1	0	**\<mac\>**			
2	0	**\<rom\>**	**\<ram\>**	**\<cpu\>**	**\<osSysVer\>**
3	0	**\<swVer\>**	**\<swName\>**		
4	0	**\<volte\>**	**\<netType\>**	**\<account\>**	**\<phoneNum\>**
5	0	**\<location\>**			

\<appInfo\>   String type. Terminal application information. It should be marked with double quotation marks, and the max string length is 255 bytes. It is the APP information collection, with each log separated by semicolon. Each log contains APP name, package name, APP usage time (milliseconds), APP open times and separated by '|'. If there is no information, please set it as "NULL".

\<mac\>   String type. Media access control address of terminal. It should be marked with double quotation marks, and the max string length is 19 bytes. If there is no information, please set it as "NULL".

\<rom\>   String type. ROM information of terminal. It should be marked with double quotation marks, and the max string length is 19 bytes. If there is no information, please set it as "NULL".

\<ram\>   String type. RAM information of terminal. It should be marked with double quotation marks, and the max string length is 19 bytes. If there is no information, please set it as "NULL".

\<cpu\>   String type. CPU information of terminal. It should be marked with double quotation marks, and the max string length is 19 bytes. If there is no information, please set it as "NULL".

\<osSysVer\>   String type. Operation system version of terminal. It should be marked with double quotation marks, and the max string length is 47 bytes. If there is no information, please set it as "NULL".

\<swVer\>   String type. Software version of terminal. It should be marked with double quotation marks, and the max string length is 47 bytes. If there is no information, please set it as "NULL".

\<swName\>   String type. Software name of terminal. It should be marked with double quotation marks, and the max string length is 47 bytes. If there is no information, please set it as "NULL".

\<volte\>   String type. VoLTE state of terminal. It should be marked with double quotation marks, and the max string length is 7 bytes. If there is no information, please set it as "NULL".

\<netType\>   String type. Network type of terminal. It should be marked with double quotation marks, and the max string length is 19 bytes. If there is no information, please set it as "NULL".

\<account\>   String type. Broadband account of terminal. It should be marked with double quotation marks, and the max string length is 47 bytes. If there is no information, please set it as "NULL".

\<phoneNum\>   String type. Phone number of terminal. It should be marked with double quotation

	marks, and the max string length is 19 bytes. If there is no information, please set it as "NULL".
<location>	String type. Location information of terminal. It should be marked with double quotation marks, and the max string length is 255 bytes. If there is no information, please set it as "NULL".

Example

```
//Set APP information.
AT+QDMPCFGEX=0,0,"Douyin|FW1|990650|9123;Wechat|FW02|80650|9201;QQ|FW03|11650|92551
;Alipay|FW88|22650|5555;Zhihu|FW333|77750|65101"
OK

//Query APP information.
AT+QDMPCFGEX=0,1
+QDMPCFGEX:  0,Douyin|FW1|990650|9123;Wechat|FW02|80650|9201;QQ|FW03|11650|92551;Alip
ay|FW88|22650|5555;Zhihu|FW333|77750|65101

OK

//Erase APP information.
AT+QDMPCFGEX=0,2
OK

//Set MAC.
AT+QDMPCFGEX=1,0,"00-01-6C-06-A6-29"
OK

//Query MAC.
AT+QDMPCFGEX=1,1
+QDMPCFGEX: 1,00-01-6C-06-A6-29

OK

//Erase MAC.
AT+QDMPCFGEX=1,2
OK

//Set ROM, RAM, CPU, OS version information.
AT+QDMPCFGEX=2,0,"4096KB","4096KB","MT2625","FREE RTOS"
OK

//Query ROM, RAM, CPU, OS version information.
AT+QDMPCFGEX=2,1
```

+QDMPCFGEX: 2,4096KB,4096KB,MT2625,FREE RTOS

OK   14 / 18

//Erase ROM, RAM, CPU, OS version information.
AT+QDMPCFGEX=2,2
OK

//Set software version and name.
AT+QDMPCFGEX=3,0,"BC26NBR01A07","Quectel"
OK

//Query software version and name.
AT+QDMPCFGEX=3,1
+QDMPCFGEX: 3,BC26NB0R01A07,Quectel

OK

//Erase software version and name.
AT+QDMPCFGEX=3,2
OK

//Set VoLTE state, network type, broadband account and phone number.
AT+QDMPCFGEX=4,0,"off","NB-IoT","XY05553867549","18009699999"
OK

//Query VoLTE state, network type, broadband account and phone number.
AT+QDMPCFGEX=4,1
+QDMPCFGEX: 4,off,NB-IoT,XY05553867549,18009699999

OK

//Erase VoLTE state, network type, broadband account and phone number.
AT+QDMPCFGEX=4,2
OK

//Set location information.
AT+QDMPCFGEX=5,0,"31.8438799075,117.2025477950,OTDOA"
OK

//Query location information.
AT+QDMPCFGEX=5,1
+QDMPCFGEX: 5,31.8438799075,117.2025477950,OTDOA

OK

//Erase location information.
AT+QDMPCFGEX=5,2
OK

3 Error Values

This chapter introduces the error values related to BC26 module.

The error codes listed in the following two tables are compliant with the 3GPP specifications. Customers can refer to *3GPP TS 27.007 V13.5.0, sub-clause 9.2* for all possible **<err>** values.

Table 1: General Errors (27.007)

Code of <err>	Description
3	Operation not allowed
4	Operation not supported
23	Memory failure
30	No network service
50	Incorrect parameters
51	Command implemented but currently disabled
52	Command aborted by user
159	Uplink busy/flow control

Table 2: General Errors (27.005)

Code of <err>	Description
300	ME failure
301	SMS service of ME reserved
302	Operation not allowed
303	Operation not supported
304	Invalid PDU mode parameter

305	Invalid text mode parameter
310	USIM not inserted
311	USIM PIN required
312	PH-USIM PIN required
313	USIM failure
314	USIM busy
315	USIM wrong
316	USIM PUK required
317	USIM PIN2 required
318	USIM PUK2 required
320	Memory failure
321	Invalid memory index
322	Memory full
330	SMSC address unknown
331	No network service
332	Network timeout
340	No +CNMA acknowledgement expected
500	Unknown error

4 Appendix A References

Table 3: Terms and Abbreviations

Abbreviation	Description
APP	Applications
CMDMP	China Mobile Device Management Platform
CPU	Central Processing Unit
IMEI	International Mobile Equipment Identity
IP	Internet Protocol
LPWA	Low Power Wide Area
MAC	Media Access Control
ME	Mobile Equipment
NB-IoT	Narrow Band Internet of Things
NVRAM	Non-Volatile Random Access Memory
OS	Operating System
RAM	Random Access Memory
ROM	Read Only Memory
VoLTE	Voice over Long-Term Evolution