BC25&BC32 CMDMP

Application Note

LPWA Module Series

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About the Document

History

Revision	Date	Author	Description
1.0	2019-07-31	Albert ZHANG	Initial

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1 Introduction

China Mobile Device Management Platform (CMDMP) is used to manage terminal devices, collect terminal device information and to handle events and alerts of terminal devices that applies Quectel BC25 or BC32 modules. For details of CMDMP related information, please contact China Mobile.

This document mainly introduces how to configure the parameters related to the access of BC25 and BC32 modules to CMDMP with AT commands.

2 CMDMP Related AT Commands

2.1. AT+QDMPCFG   CMDMP Access Configuration

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

The read command is used to query the parameters currently used by BC25 and BC32 modules, which may not be identical with the saved configuration information.

The write command is used to save or erase configuration, and all the saved configuration 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>[,<para meter3>[,<parameter4>]]]]** **OK**
Read Command **AT+QDMPCFG?**	Response **+QDMPCFG: 0,<dmMode>** **[+QDMPCFG: 1,<serverIp>,<serverPort>,<updatePeriod>** **+QDMPCFG: 2,<appkey>,<password>,<tmlType>,<tmIME I>]** **OK**
Write Command **AT+QDMPCFG=<type>,<parameter1>[,<parameter2>[,<parameter3>[,<para meter4>]]]**	Response **[+QDMPCFG: <type>,<parameter1>[,<parameter2>[,<para meter3>[,<parameter4>]]]** **]** **OK** If there is any error: **ERROR** Or

	+CME ERROR: <err>

Parameter

<type>	Configure type.
	0 Configure CMDMP access mode
	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>**	**<tmlIMEI>**
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>	The IP address of CMDMP server, and the default server IP is 117.161.2.41.
<serverPort>	CMDMP server port, and the default server port is 5683.
<updatePeriod>	Update period. Range: 300-4294966. Unit: second. The default update period is 86400s.
<appkey>	App key, in write command, it should be marked with double quotation marks, e.g. "appkey".
<password>	Private key, in write command, it should be marked with double quotation marks, e.g. "password". In read command, only the first four characters of the private key will be shown, e.g. "pass****".
<tmlType>	Terminal type.
	<u>0</u> Interface
	1 Linux
	2 Android
<tmlIMEI>	Terminal device IMEI. The length should be 15-17 bytes.
<queryOpt>	Options for querying saved configuration information.
	0 Query saved CMDMP access mode
	1 Query saved IP address and port of CMDMP server and the update period
	2 Query saved App key, private key, interface type and terminal IMEI
	3 Reserved

\<eraseOpt\>	Options for erasing saved configuration information.	
	0	Erase saved CMDMP access mode
	1	Erase saved IP address and port of CMDMP server and the 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

NOTES

1. The configuration will be saved to NVRAM automatically.
2. The write command is used to save or erase configuration. All saved configuration will take effect after reboot.

Example

```
AT+QDMPCFG?                              //Query current configuration information
+QDMPCFG: 0,1
+QDMPCFG: 1,117.161.2.7,5683,420
+QDMPCFG: 2,M100000089,95Go****,1,863703030822519


OK

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

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


OK

AT+QDMPCFG=1,117.161.2.7,5683,420        //Set the IP address and port of CMDMP server and the
                                           update period

OK
```

AT+QDMPCFG=4,1   //Query saved IP address and port of CMDMP server
                                        and the update period

+QDMPCFG: 1,117.161.2.7,5683,420

OK

//Set App key, private key, interface type and terminal IMEI
AT+QDMPCFG=2,"M100000089","77GaaTUi33nUK05ha528888QFbk0Y38M",1,863703030822519
OK

AT+QDMPCFG=4,2   //Query saved App key, private key, interface type and
                                        terminal IMEI

+QDMPCFG: 2,M100000089,77Ga**,1,863703030822519**

OK

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

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

OK

AT+QDMPCFG=6   //Query CMDMP access state
+QDMPCFG: 6,11   //Updated successfully

OK

2.2. AT+QDMPCFGEX   Extended CMDMP Access Configuration

The command is used to configure and query CMDMP configuration information, which is required for CMDMP V2.0 functions.

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

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

AT+QDMPCFGEX   Extended CMDMP Access Configuration

Test Command **AT+QDMPCFGEX=?**	Response **+QDMPCFGEX: <type>,<act>[,<parameter1>[,<parameter2>[,<parameter3>,<parameter4>]]]** **OK**
Write Command **AT+QDMPCFGEX=<type>,<act>[,<parameter1>[,<parameter2>[,<parameter3>,<parameter4>]]]**	Response **[+QDMPCFGEX: <type>,<parameter1>[,<parameter2>[,<parameter3>,<parameter4>]]** **]** **OK** If there is any error: **ERROR** Or **+CME ERROR: <err>**

Parameter

<type>	Configure 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, e.g. "appInfo". The maximum length is 255 bytes. It is an App collection with each log separated by semicolon. Each log contains App name, package name, App usage time (milliseconds), App open times, which are separated by "|". If there is no such information,

	please set with "NULL".
<mac>	String type. MAC address of terminal. It should be marked with double quotation marks and the maximum length is 19 bytes. If there is no such information, please set with "NULL".
<rom>	String type. ROM information of terminal. It should be marked with double quotation marks and the maximum length is 19 bytes. If there is no such information, please set with "NULL".
<ram>	String type. RAM information of terminal. It should be marked with double quotation marks and the maximum length is 19 bytes. If there is no such information, please set with "NULL".
<cpu>	String type. CPU information of terminal. It should be marked with double quotation marks and the maximum length is 19 bytes. If there is no such information, please set with "NULL".
<osSysVer>	String type. Operation system version of terminal. It should be marked with double quotation marks and the maximum length is 47 bytes. If there is no such information, please set with "NULL".
<swVer>	String type. Software version of terminal. It should be marked with double quotation marks and the maximum length is 47 bytes. If there is no such information, please set with "NULL".
<swName>	String type. Software name of terminal. It should be marked with double quotation marks and the maximum length is 47 bytes. If there is no such information, please set with "NULL".
<volte>	String type. VoLTE state of terminal. It should be marked with double quotation marks and the maximum length is 7 bytes. If there is no such information, please set with "NULL".
<netType>	String type. Network type of terminal. It should be marked with double quotation marks and the maximum length is 19 bytes. If there is no such information, please set with "NULL".
<account>	String type. Broadband account of terminal. It should be marked with double quotation marks and the maximum length is 47 bytes. If there is no such information, please set with "NULL".
<phoneNum>	String type. Phone number of terminals. It should be marked with double quotation marks and the maximum length is 19 bytes. If there is no such information, please set with "NULL".
<location>	String type. Location information of terminal. It should be marked with double quotation marks and the maximum length is 255 bytes. If there is no such information, please set with "NULL".

NOTES

1. The configuration will be saved to NVRAM automatically.
2. The write command is used to save or erase configuration. All saved configuration will take effect after reboot.

Example

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

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

OK

AT+QDMPCFGEX=0,2   // Erase App information
OK

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

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

OK

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

AT+QDMPCFGEX=2,0,"8192KB","4096KB","RDA8909B","SX RTOS"   //Set ROM, RAM, CPU, OS version information

OK

AT+QDMPCFGEX=2,1   //Query ROM, RAM, CPU, OS version information
+QDMPCFGEX: 2,8192KB,4096KB,RDA8909B,SX RTOS

OK

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

AT+QDMPCFGEX=3,0,"BC32B8R01A01","Quectel"   //Set software version and name
OK

```
AT+QDMPCFGEX=3,1                                    //Query software version and name
+QDMPCFGEX: 3,BC32B8R01A01,Quectel

OK


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

OK


AT+QDMPCFGEX=4,0,"off","NB-IoT","XY05553867549","18009699999"
OK


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

OK


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


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


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

OK


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

3 Error Values

This chapter introduces the error values related to BC25 and BC32 modules.

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)

<err> values	Description
3	Operation not allowed
4	Operation not supported
23	Memory failure
30	No network service
50	Execute fail
52	Option not supported
53	Param invalid
159	Uplink busy/flow control

Table 2: General Errors (27.005)

<err> values	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

NOTE

AT+CMEE=<n> command disables (**<n>=0**) or enables (**<n>=1**, **<n>=2**) the use of final result code **+CME ERROR:<err>**. For more details, please refer to *Quectel_BC25_AT_Commands_Manual* or *Quectel_BC32_AT_Commands_Manual*.

4 Appendix A References

Table 3: Terms and Abbreviations

Abbreviation	Description
CoAP	Constrained Application Protocol
CMDMP	China Mobile Device Management Platform
CPU	Central Processing Unit
DM	Device Management
IMEI	International Mobile Equipment Identity
LwM2M	Lightweight Machine to Machine
LPWA	Low-Power Wide-Area
MAC	Media Access Control
ME	Mobile Equipment
NB-IoT	Narrow Band Internet of Things
NVRAM	Non-Volatile Radom Access Memory
OS	Operation System
RAM	Random Access Memory
ROM	Read-Only Memory
REST	Representational state transfer
TE	Terminal Equipment (Typically the MCU)
UE	User Equipment (Typically the Module)
URC	Unsolicited Result Code