

EC25&EC21 QuecLocator AT Commands Manual

LTE Module Series

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About the Document

History

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1 Introduction

Quectel EC25 and EC21 modules support QuecLocator function to get location information by base station. This document is a reference guide to all the AT commands defined for QuecLocator.

1.1. General Process of QuecLocator

Step 1: Configure and activate the PDP context.

- 1) Configure the PDP context parameters of <apn>, <username>, <password> and other parameters by AT+QICSGP command. If a context needs to be used in multiple ways or multiple PDNs with the same APN profile need to be established, configure them by AT+QCFG="PDP/DuplicateChk",1. If QoS settings need to be updated, configure them by AT+CGQMIN, AT+CGEQMIN, AT+CGQREQ, and AT+CGEQREQ commands. For more details about these commands, please refer to *Quectel_EC25&EC21_AT_Commands_Manual*.
- 2) Activate the PDP context by AT+QIACT.
- 3) Configure the PDP context ID for QuecLocator by AT+QLOCCFG="contextid",<contextID>.

Step 2: Get the location information by AT+QCELLLOC. Step 2 can be repeated.

1.2. Error Handling

1.2.1. Executing QuecLocator AT Command Fails

If you execute QuecLocator AT command and receive response "ERROR" from the module, please check whether the SIM/USIM card is inserted and AT+CPIN? is in "+CPIN: Ready" status.

1.2.2. PDP Activation Fails

If you failed to activate PDP context by AT+QIACT command, please check the following configurations:

1. Query whether the PS domain is attached or not by AT+CGATT? command. If not, please execute AT+CGATT=1 command to attach PS domain.
2. Query the CGREG status by AT+CGREG? command and make sure the PS domain has been registered.

3. Query the PDP context parameters by AT+QICSGP command and make sure the APN of specified PDP context has been set.
4. Make sure the specified PDP context ID is neither used by PPP nor activated by AT+CGACT command.

If all above configurations are correct, but you still fail to activate PDP context by executing AT+QIACT command, please reboot the module to resolve this issue. After booting the module, please check the configurations mentioned above at least three times and each time at an interval of 10 minutes to avoid frequently rebooting the module.

1.2.3. Error Response of AT+QCELLLOC

If +CME ERROR: <err> is returned after executing AT+QCELLLOC, please re-execute AT+QCELLLOC. If it fails again, you should deactivate the PDP context by AT+QIDEACT command, and try again (Please refer to **Chapter 1.2.2**).

2 Description of AT Commands

2.1. AT+QLOCCFG Configuration of QuecLocator

You can configure the PDP context ID and timeout value by AT+QLOCCFG.

AT+QLOCCFG Configuration of QuecLocator	
Test Command AT+QLOCCFG=?	Response +QLOCCFG: "contextid",(1-16) +QLOCCFG: "timeout",(1-300) OK
Read Command AT+QLOCCFG?	Response +QLOCCFG: "contextid",<contextID> +QLOCCFG: "timeout",<timeout> OK
Write Command AT+QLOCCFG="contextid"[,<context ID>]	Response If <contextID> is not omitted: OK Or +CME ERROR: <err> Else query the current settings: +QLOCCFG: "contextid",<contextID> OK
Write Command AT+QLOCCFG="timeout"[,<timeout>]	Response If <timeout> is not omitted: OK Or +CME ERROR: <err> Else query the current settings: +QLOCCFG: "timeout",<timeout>

OK

Parameter

<contextID>	Integer type, PDP context ID, the range is 1-16, default value is 1.
<timeout>	Integer type, the maximum time waiting for data from server. If there is no data coming from server within timeout value, it will return error. The default value is 60, unit is second. The range is 1-300.

2.2. AT+QCELLLOC Get Location Information by QuecLocator

AT+QCELLLOC Get Location Information by QuecLocator

Test Command AT+QCELLLOC=?	Response OK
Execute Command AT+QCELLLOC	Response +QCELLLOC: <longitude>,<latitude> OK Or +CME ERROR: <err>

Parameter

<longitude>	Float type, the longitude of the location information. This value should be accurate to six decimal places, and the range is from -180.000000 to 180.000000.
<latitude>	Float type, the latitude of the location information. This value should be accurate to six decimal places, and the range is from -90.000000 to 90.000000.
<err>	Integer type, indicates the operation error code. It is the type of error (Please refer to the Chapter 4)

3 Examples

3.1. Get Location Information by QuecLocator

//Step 1: Configure and activate the PDP context.

```
AT+QICSGP=1,1,"UNIWAP","",1 //Configure PDP context 1, APN is "UNIWAP" for China Unicom.
OK
AT+QIACT=1 //Activate PDP context 1.
OK //Activated successfully.
AT+QIACT? //Query the state of PDP context.
+QIACT: 1,1,1,"10.7.157.1"
```

```
OK
AT+QLOCCFG="contextid",1 //Set the PDP context ID as 1. The PDP context ID must be
activated first.
OK
AT+QLOCCFG="contextid" //Query the PDP context ID.
+QLOCCFG: "contextid",1
```

OK

//Step 2: Get the location information by QuecLocator.

```
AT+QCELLLOC //Get the serving cell location.
+QCELLLOC: 117.206001,31.847601
```

OK

3.2. Use the Same Context to Establish a PPP Dial-up Connection and Get Location Information by QuecLocator

//Step 1: Enable ME to use the same context in multiple ways.

```
AT+QCFG="pdp/duplicatechk",1
OK
```

//Step 2: Configure the PDP context for PPP dial-up connection.

AT+CGDCONT=1,"IP","UNINET" //Configure PDP context 1, APN is "UNINET" for China Unicom.
OK

//Step 3: Establish a PPP dial-up connection using the APN "UNINET" and the default context. Please refer to *Quectel_EC25&EC21_PPP_Application_Note* for details.

//Step 4: Configure and activate the PDP context for QuecLocator.

AT+QICSGP=1,1,"UNINET","",0 //Configure PDP context 1, APN is "UNINET" for China Unicom.
OK

AT+QIACT=1 //Activate PDP context 1.

OK //Activated successfully.

AT+QIACT? //Query the state of PDP context.

+QIACT: 1,1,1,"10.3.189.252"

OK

AT+QLOCCFG="contextid",1 //Set the PDP context ID as 1. The PDP context ID must be activated first.

OK

AT+QLOCCFG="contextid" //Query the PDP context ID.

+QLOCCFG: "contextid",1

OK

//Step 5: Get the location information by QuecLocator.

AT+QCELLLOC //Get the serving cell location.

+QCELLLOC: 117.206001,31.847601

OK

3.3. Use the Same APN but with Different Contexts to Establish a PPP Dial-up Connection and Get Location Information by QuecLocator

//Step 1: Enable ME to establish multiple PDNs with the same APN profile.

AT+QCFG="pdp/duplicatechk",1

OK

//Step 2: Configure the PDP context for PPP dial-up connection.

AT+CGDCONT=1,"IP","UNINET" //Configure PDP context 1, APN is "UNINET" for China Unicom.
OK

//Step 3: Establish a PPP dial-up connection using the APN "UNINET" and the default context. Please refer to *Quectel_EC25&EC21_PPP_Application_Note* for details.

//Step 4: Configure and activate the PDP context for QuecLocator.

AT+QICSGP=2,1,"UNINET","",1 //Configure PDP context 2, APN is "UNINET" for China Unicom.

OK

AT+QIACT=2 //Activate PDP context 2.

OK //Activated successfully.

AT+QIACT? //Query the state of PDP context.

+QIACT: 2,1,1,"10.3.189.252"

OK

AT+QLOCCFG="contextid",2 //Set the PDP context ID as 2. The PDP context ID must be activated first.

OK

AT+QLOCCFG="contextid" //Query the PDP context ID.

+QLOCCFG: "contextid",2

OK

//Step 5: Get the location information by QuecLocator.

AT+QCELLLOC //Get the serving cell location.

+QCELLLOC: 117.206001,31.847601

OK

4 Summary of Error Codes

<err> indicates an error related to mobile equipment or network. The details about <err> are described in the following table.

Table 1: Summary of Error Codes

<err>	Meaning
701	HTTP unknown error
703	HTTP busy
706	HTTP network busy
707	HTTP network open failed
708	HTTP network no configuration
709	HTTP network deactivated
710	HTTP network error
714	HTTP DNS error
715	HTTP socket create error
716	HTTP socket connect error
717	HTTP socket read error
718	HTTP socket write error
719	HTTP socket close
720	HTTP data encode error
721	HTTP data decode error

722	HTTP read timeout
723	HTTP response fail
727	Wait data timeout
728	Wait HTTP response timeout
729	Alloc memory fail
730	Invalid parameter
731	Fail to get location
732	Timeout

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5 Appendix A References

Table 2: Related Documents

SN	Document Name	Remark
[1]	Quectel_EC25&EC21_TCP/IP_AT_Commands_Manual	EC25&EC21 TCP/IP AT commands
[2]	Quectel_EC25&EC21_AT_Commands_Manual	EC25&EC21 AT commands manual
[3]	Quectel_EC25&EC21_PPP_Application_Note	EC25&EC21 PPP Application Note

Table 3: Terms and Abbreviations

Abbreviation	Description
APN	Access Point Name
HTTP	Hyper Text Transfer Protocol
PDP	Packet Data Protocol
PPP	Point-to-Point Protocol
TCP/IP	Transmission Control Protocol/Internet Protocol