EC200x-CN&EC800x-CN
SMTP Application Note

LTE Standard Module Series

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About the Document

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-	2023-02-01	Carson LIU	Creation of the document
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1 Introduction

Quectel LTE Standard EC200M-CN, EC200N-CN, EC800M-CN and EC800N-CN modules provide an SMTP interface that you can use to send email from applications you develop. This document is a reference guide to all the AT commands defined for SMTP.

Table 1: Applicable Modules

Module Family	Module
EC200x	EC200M-CN
	EC200N-CN
EC800x	EC800M-CN
	EC800N-CN

1.1. Introduction of SSL Type

There are three kinds of connections between SMTP client and SMTP server:

- Without SSL
- SSL
- STARTTLS

Some SMTP servers do not support connection without SSL, while some can support all of them. You can select the connection method according to the mail service provider.

These three kinds of connections can be set by **<SSL_type>** parameter in **AT+QSMTPCFG="ssltype"**.
1. If **<SSL_type>** is 0, it means "without SSL". In this case, SSL function will not be used, and emails are sent with insecure connection. The port of SMTP server depends on mail service provider, and is port 25 usually.
2. If **<SSL_type>** is 1, it means "SSL". In this case, emails are sent with SSL/TLS encrypted SMTP. The port of SMTP server depends on mail service provider, and is port 465 or 587 usually.
3. If **<SSL_type>** is 2, it means "STARTTLS". In this case, the normal insecure connection can be

upgraded to secure connection through STARTTLS function, for sending the mail data. The port of SMTP server depends on mail service provider, and is port 25, 465 or 587 usually.

1.2. The Process of Sending Email

As LTE Standard EC200M-CN, EC200N-CN, EC800M-CN and EC800N-CN modules support SMTP protocol, emails can be sent easily by module SMTP AT commands. The general process is as follows:

Step 1: Configure and activate a PDP context.
1) Configure **<APN>**, **<username>**, **<password>** and other parameters of a PDP context by **AT+QICSGP**. See *document [1]* for details.
   If QoS settings need to be updated, configure them by **AT+CGQMIN**, **AT+CGEQMIN**, **AT+CGQREQ** and **AT+CGEQREQ** commands. See *document [2]* for details.
2) Activate the PDP context by **AT+QIACT**.
3) Configure the PDP context ID for SMTP by **AT+QSMTPCFG="contextid",<contextID>**.

Step 2: Configure SMTP server and user account.
1) Configure SSL type by **AT+QSMTPCFG="ssltype",<SSL_type>**. If **<SSL_type>** is SSL or STARTTLS, choose an SSL context by **AT+QSMTPCFG="sslctxid",<SSL_ctxID>** and configure the **<SSL_ctxID>** by **AT+QSSLCFG="ciphersuite",<SSL_ctxID>,<ciphersuites>**. See *document [3]* for details.
2) Configure SMTP server by **AT+QSMTPCFG="smtpserver",<srvaddr>,<srvport>**. **<srvaddr>** and **<srvport>** depend on the mail service provider.
3) Configure account information by **AT+QSMTPCFG="account",<username>,<password>**.
4) Configure sender information by **AT+QSMTPCFG="sender",<sender_name>,<sender_email>**.

Step 3: Edit the email content.
1) Configure the recipient by **AT+QSMTPDST**.
2) Configure the subject of email by **AT+QSMTPSUB**.
3) Configure the body of email by **AT+QSMTPBODY**.
4) Add attachments for the email by **AT+QSMTPATT**. The attachments can be UFS or SD files. And the files can be uploaded to UFS or SD card by **AT+QFUPL**. After sending email successfully, the file should be deleted by **AT+QFDEL**. See *document [4]* for details.

Step 4: Send email.
   Send the email by **AT+QSMTPPUT**. It takes some time to send the email depending on the total size of attachments and network status. When the sending action ends, **+QSMTPPUT: <err>,<protocol_error>** is returned.

Step 5: Clear the email content.

    1)   **AT+QSMTPCLR** clears the email content configured in *Step 3*. The attached files should be deleted by **AT+QFDEL**. See *document [4]* for details. Then repeat *Step 3* and *Step 4*. If the SMTP server information and user information need to be modified, then *Step 2* to *Step 4* should be repeated.

    5)   If emails have not been sent for a long time, such as 30 minutes or even longer, the PDP context should be deactivated by **AT+QIDEACT=<contextID>**. See *document [2]* for details.

1.3. Description of Data Mode

The COM port of LTE Standard EC200M-CN, EC200N-CN, EC800M-CN and EC800N-CN modules has two working modes: AT command mode and data access mode. In AT command mode, the inputted data over COM port is treated as AT command, while in data access mode, it is treated as data.

Inputting **+++** or pulling up DTR (**AT&D1** should be executed first) can make the module exit from data mode. To prevent the **+++** from being misinterpreted as data, the following sequence should be followed:

1)   Do not input any character within 1 second or longer before inputting **+++**.
2)   Input **+++** within 1s, and no other characters can be inputted during the time.
3)   Do not input any character within 1 second after **+++** has been inputted.

When **AT+QSMTPBODY** is executed, the COM port will enter into data access mode. All inputted data will be the body of email. If the inputted data reaches the **<body_length>** or the time reaches **<input_time>**, the port will exit from data mode automatically. If the inputted data is less than the **<body_length>**, finish editing body by inputting **+++** or changing DTR level from low to high before **<input_time>** reaches. In such case, the COM port cannot reenter data mode by executing **ATO**.

2 SMTP AT Commands

2.1. AT Command Introduction

2.1.1. Definitions

- **<CR>**   Carriage return character.
- **<LF>**   Line feed character.
- **<...>**   Parameter name. Angle brackets do not appear on the command line.
- **[...]**   Optional parameter of a command or an optional part of TA information response. Square brackets do not appear on the command line. When an optional parameter is not given in a command, the new value equals its previous value or the default settings, unless otherwise specified.
- <u>**Underline**</u>   Default setting of a parameter.

2.1.2. AT Command Syntax

All command lines must start with **AT** or **at** and end with **<CR>**. Information responses and result codes always start and end with a carriage return character and a line feed character: **<CR><LF><response><CR><LF>**. In tables presenting commands and responses throughout this document, only the commands and responses are presented, and **<CR>** and **<LF>** are deliberately omitted.

Table 2: Type of AT Commands

Command Type	Syntax	Description
Test Command	**AT+<cmd>=?**	Test the existence of corresponding command and return information about the type, value, or range of its parameter.
Read Command	**AT+<cmd>?**	Check the current parameter value of a corresponding Write Command.
Write Command	**AT+<cmd>=<p1>[,<p2>[,<p3>[...]]]**	Set user-definable parameter value.
Execution Command	**AT+<cmd>**	Return a specific information parameter or perform a specific action.

2.2. Declaration of AT Command Examples

The AT command examples in this document are provided to help you learn about how to use the AT commands introduced herein. The examples, however, should not be taken as Quectel's recommendation or suggestions about how you should design a program flow or what status you should set the module into. Sometimes multiple examples may be provided for one AT command. However, this does not mean that there exists a correlation among these examples and that they should be executed in a given sequence.

2.3. Description of AT Commands

2.3.1. AT+QSMTPCFG Configure Parameters for SMTP Server

This command configures the SMTP server, user account and SSL settings.

AT+QSMTPCFG Configure Parameters for SMTP Server	
Test Command **AT+QSMTPCFG=?**	Response **+QSMTPCFG: "account",\<username>,\<password>** **+QSMTPCFG: "sender",\<sender_name>,\<sender_email>** **+QSMTPCFG: "smtpserver",\<srvaddr>,\<srvport>** **+QSMTPCFG: "contextid",**(range of supported **\<contextID>**s**)** **+QSMTPCFG: "sslctxid",**(range of supported **\<SSL_ctxID>**s**)** **+QSMTPCFG: "ssltype",**(range of supported **\<SSL_type>**s**)** **+QSMTPCFG: "bodyoriginal",**(list of supported **\<body_switch>**s**)** **OK**
Write Command **AT+QSMTPCFG="account"[,\<username>,\<password>]**	Response If the optional parameters are omitted, query the current setting: **+QSMTPCFG: "account",\<username>,\<password>** **OK** If the optional parameters are specified, set the user account: **OK** Or **+CME ERROR: \<err>**
Write Command **AT+QSMTPCFG="sender"[,\<sender_name>,\<sender_email>]**	Response If the optional parameters are omitted, query the current setting: **+QSMTPCFG: "sender",\<sender_name>,\<sender_email>** **OK**

	If the optional parameters are specified, set the sender's information: **OK** Or **+CME ERROR: \<err>**
Write Command **AT+QSMTPCFG="smtpserver"[,\<srvaddr>,\<srvport>]**	Response If the optional parameters are omitted, query the current setting: **+QSMTPCFG: "smtpserver",\<srvaddr>,\<srvport>** **OK** If the optional parameters are specified, set the SMTP server: **OK** Or **+CME ERROR: \<err>**
Write Command **AT+QSMTPCFG="contextid"[,\<contextID>]**	Response If the optional parameter is omitted, query the current setting: **+QSMTPCFG: "contextid",\<contextID>** **OK** If the optional parameter is specified, set the PDP context ID: **OK** Or **+CME ERROR: \<err>**
Write Command **AT+QSMTPCFG="sslctxid"[,\<SSL_ctxID>]**	Response If the optional parameter is omitted, query the current setting: **+QSMTPCFG: "sslctxid",\<SSL_ctxID>** **OK** If the optional parameter is specified, set the SSL context ID: **OK** Or **+CME ERROR: \<err>**
Write Command **AT+QSMTPCFG="ssltype"[,\<SSL_type>]**	Response If the optional parameter is omitted, query the current setting: **+QSMTPCFG: "ssltype",\<SSL_type>** **OK** If the optional parameter is specified, set the SSL type: **OK**

	Or
	+CME ERROR: \<err\>
Write Command **AT+QSMTPCFG="bodyoriginal"[, \<body_switch\>]**	Response If the optional parameter is omitted, query the current setting: **+QSMTPCFG: "bodyoriginal",\<body_switch\>** **OK** If the optional parameter is specified, set whether to enable to send SMTP body with no charset: **OK** Or **+CME ERROR: \<err\>**
Maximum Response Time	300 ms
Characteristics	The command takes effect immediately. The configurations are not saved.

Parameter

\<username\>	String type. The username for authentication. The maximum size is 50 bytes.
\<password\>	String type. The password for authentication. The maximum size is 50 bytes.
\<sender_email\>	String type. The email address of the sender. The maximum size is 50 bytes.
\<sender_name\>	String type. The sender's name that will be shown when the recipient receives the email. The maximum size is 50 bytes.
\<srvaddr\>	String type. The IP address or domain name of the SMTP server. The maximum size is 50 bytes.
\<srvport\>	Integer type. The port of the SMTP server. The default value is 25. It may be different depending on different SMTP server. For details, query the corresponding mail service provider.
\<contextID\>	Integer type. The PDP context ID. Range: 1–16. Default value: 1. It should be activated by **AT+QIACT** before sending an email. See *document [1]* for details.
\<SSL_ctxID\>	Integer type. SSL context ID used for SMTP. Range: 0–5. Default value: 1. You can configure the SSL parameters by **AT+QSSLCFG**. See *document [3]* for details.
\<SSL_type\>	Integer type. SSL type. You can choose the SSL type according to the mail service provider, since some SMTP servers do not support sending email without SSL. 0 Without SSL 1 SSL 2 STARTTLS
\<body_switch\>	Integer type. Enable/disable to send the SMTP body with no charset. 0 Disable to send SMTP body with no charset 1 Enable to send SMTP body with no charset, and send original SMTP body

<err>	Integer type. The error code of the operation. See *Chapter 5* for details.

2.3.2. AT+QSMTPDST   Add or Delete Recipients

This command adds or deletes recipients. The maximum number of recipients is 20, including CC recipients and BCC recipients.

AT+QSMTPDST Add or Delete Recipients	
Test Command **AT+QSMTPDST=?**	Response **+QSMTPDST: (**list of supported **<mode>**s)**,(**range of supported **<type>**s)**,<emailaddr>** **OK**
Read Command **AT+QSMTPDST?**	Response **[+QSMTPDST: <type>,<emailaddr>]** **[...]** **OK**
Write Command **AT+QSMTPDST=<mode>[,<type>[,< emailaddr>]]**	Response **OK** Or **+CME ERROR: <err>**
Maximum Response Time	300 ms
Characteristics	The command takes effect immediately. The configurations are not saved.

Parameter

<mode>	Integer type. Add or delete recipients.
	0 Delete
	1 Add. In this case, **<type>** and **<emailaddr>** should be specified
<type>	Integer type. The type of recipients.
	1 All recipients
	2 CC recipients
	3 BCC recipients
<emailaddr>	String type. The email address of recipients. The maximum length is 50 bytes.
<err>	Integer type. The error code of the operation. See *Chapter 5* for details.

Example

```
//Add recipients.
AT+QSMTPDST=1,1,"quectel_test@aol.com"          //Add all the recipients.
```

```
OK
AT+QSMTPDST=1,2,"quectel_test@21cn.com"          //Add CC recipients.
OK
AT+QSMTPDST?
+QSMTPDST: 1,"quectel_test@aol.com"
+QSMTPDST: 2,"quectel_test@21cn.com"

OK
//Delete all recipients.
AT+QSMTPDST=0                                     //Delete all the recipients.
OK
AT+QSMTPDST?
OK
```

2.3.3. AT+QSMTPSUB   Edit the Subject of an Email

This command edits the subject of an email. If **<charset>** is not ASCII, the inputted data should be the hex string of the original subject.

AT+QSMTPSUB Edit the Subject of an Email	
Test Command **AT+QSMTPSUB=?**	Response **+QSMTPSUB: (**range of supported **<charset>**s)**,<subject>** **OK**
Read Command **AT+QSMTPSUB?**	Response **+QSMTPSUB: <charset>,<subject>** **OK**
Write Command **AT+QSMTPSUB=<charset>,<subject>**	Response **OK** Or **+CME ERROR: <err>**
Maximum Response Time	300 ms
Characteristics	/

Parameter

<charset>	Integer type. The character set of the subject.
	0 ASCII
	1 UTF-8
	2 GB2312
	3 BIG5

<subject>	String type. The subject of the email. If **<charset>** is 0, this string is the subject of the email. Otherwise, it is formatted as a hex string, e.g. "41" means the hex value "0x41". If the character set is ASCII, the length of **<subject>** is 0–100 in unit of byte. If the character set is not ASCII, the length of **<subject>** should be even and the maximum length is 200 bytes.
<err>	Integer type. The error code of the operation. See **Chapter 5** for details.

Example

```
//Add subject for an email and the <charset> is ASCII.
AT+QSMTPSUB=0,"TEST SMTP"            //Edit the subject and the character set is ASCII.
OK
AT+QSMTPSUB?                         //Query subject of the email.
+QSMTPSUB: 0,"TEST SMTP"

OK
//Add the subject for email and the <charset> is UTF8. "7465737420534D5450" is the hex string of "TEST
SMTP".
AT+QSMTPSUB=1,"7465737420534D5450"  //Edit subject and the character set is UTF8.
OK
AT+QSMTPSUB?                         //Query the subject of the email.
+QSMTPSUB: 1,"7465737420534D5450"

OK
```

2.3.4. AT+QSMTPBODY   Edit the Body of an Email

This command edits the body of an email. When **AT+QSMTPBODY=<charset>,<body_length>[,<input_time>]** is executed, the module enters into data access mode. All inputted data is the body of email. If the inputted data reaches the **<body_length>** or the time reaches **<input_time>**, the module will exit from data mode automatically. If the inputted data is less than the **<body_length>**, finish editing body by inputting **+++** or changing DTR level from low to high before reaching **<input_time>**. The maximum size of the email body is 10 Kbytes. The actual body length is the inputted data length.

AT+QSMTPBODY Edit the Body of an Email	
Test Command **AT+QSMTPBODY=?**	Response **+QSMTPBODY: (**range of supported **<charset>**s),(range of supported **<body_length>**s),(range of supported **<input_time>**s) **OK**
Read Command	Response

AT+QSMTPBODY?	OK
Write Command **AT+QSMTPBODY=<charset>,<body_length>[,<input_time>]**	Response If the format is correct and it is not sending an email, enter data access mode: **CONNECT** <Input body data> **+QSMTPBODY: <input_length>** **OK** If there is any error: **+CME ERROR: <err>**
Maximum Response Time	Determined by **<input_time>**
Characteristics	/

Parameter

<charset>	Integer type. The character set of the body. 0 ASCII 1 UTF-8 2 GB2312 3 BIG5
<body_length>	Integer type. The specific length of body. If the length of inputted data is less than the specific value **<body_length>**, exit from data mode by executing **+++**. The actual length of the body is the inputted data length. Range: 1–10240. Unit: byte.
<input_length>	Integer type. The actual length of the inputted body.
<input_time>	Integer type. The maximum time to upload email body from COM port. Range: 1–65535. Default value: 90. Unit: second.
<err>	Integer type. The error code of the operation. See *Chapter 5* for details.

Example

//Edit email body and the body length is 100 bytes.
AT+QSMTPBODY=0,100,120   //Edit email body. The character set of the body is ASCII, and the maximum input length is 100 bytes and the maximum input time is 120 s.
CONNECT
<Input 100 bytes data>   //Input 100 bytes data.
+QSMTPBODY: 100

OK
//If the actual inputted data is less than the specified length, finish editing the body by inputting **+++**.

AT+QSMTPBODY=0,100,120   //Edit email body. The character set of the body is ASCII, and the maximum input length is 100 bytes and the maximum input time is 120 s.

CONNECT
<Input 90 bytes data>
//Input **+++**.
+QSMTPBODY: 90

OK
//If the actual inputted data is less than specified length and the maximum input time expires, the module will end the editing of body automatically.

AT+QSMTPBODY=0,100,120   //Edit email body. The character set is ASCII, and the maximum input length is 100 bytes and the maximum input time is 120 s.

CONNECT
<Input 90 bytes data>
//120 s later.
+QSMTPBODY: 90

OK

2.3.5. AT+QSMTPATT   Add or Delete Attachments for an Email

Attachments for email can be added by **AT+QSMTPATT=1**. When an attachment is added, the file index should be specified. As a result, different attachments should have different file index. The maximum number of attachments is 10.

The attachments can be UFS or SD files. Files can be uploaded to UFS or SD card by **AT+QFUPL**. After the email is sent successfully, the files in UFS or SD card should be deleted by **AT+QFDEL**. See *document [4]* for details. The mail service provider may have some restriction on the size of a single file and the total size.

AT+QSMTPATT=0 can be used to delete all attachments.

AT+QSMTPATT Add or Delete Attachments for an Email	
Test Command **AT+QSMTPATT=?**	Response **+QSMTPATT: (**range of supported **<mode>**s),(range of supported **<file_index>**s),**<file_name>** **OK**
Read Command **AT+QSMTPATT?**	Response **[+QSMTPATT: <file_index>,<file_name>,<file_size>]** **[...]**

	OK
Write Command AT+QSMTPATT=<mode>[,<file_index>[,<file_name>]]	Response **OK** Or **+CME ERROR: <err>**
Maximum Response Time	300 ms
Characteristics	The command takes effect immediately. The configurations are not saved.

Parameter

<mode>	Integer type. Add or delete the attachment. 0 Delete 1 Add. In this case, **<file_index>** and **<file_name>** should be specified
<file_index>	Integer type. The index of the attachment. Range: 1–10.
<file_name>	String type. The file name of the attachment to be added. The maximum size is 50 bytes.
<file_size>	Integer type. The size of the attachment. Unit: byte.
<err>	Integer type. The error code of the operation. See *Chapter 5* for details.

Example

//Add attachments from UFS. After the email is sent, the file uploaded to UFS should be deleted by **AT+QFDEL**. The detailed example is shown as follows:

AT+QFUPL="UFS:test.txt",200,300,1   //Upload a file to UFS. The file will be saved as "*test.txt*" and the maximum size of file is 200 bytes. 300 indicates timeout, and 1 indicates ACK mode. See *document [4]* for details.

CONNECT
<Input 200 bytes data>
+QFUPL: 200,707

OK
AT+QFLST="*"   //List the file information in UFS.
+QFLST: "UFS:test.txt",200

OK
AT+QSMTPATT=1,1,"UFS:test.txt"   //Add an attachment for email and the file index is 1.
OK
AT+QSMTPATT?   //Query the attachments.
+QSMTPATT: 1,"UFS:test.txt",200

OK

//Delete all attachments.

AT+QSMTPATT=0	//Delete all attachments for the email.
OK	
AT+QSMTPATT?	//Query the attachments.
OK	

2.3.6. AT+QSMTPCLR   Clear the Content of an Email

This command clears all the configurations of **AT+QSMTPDST**, **AT+QSMTPSUB**, **AT+QSMTPBODY** and **AT+QSMTPATT**.

AT+QSMTPCLR Clear the Content of an Email	
Test Command **AT+QSMTPCLR=?**	Response **OK**
Execution Command **AT+QSMTPCLR**	Response **OK** Or **+CME ERROR: <err>**
Maximum Response Time	300 ms
Characteristics	/

Parameter

<err>   Integer type. The error code of the operation. See *Chapter 5* for details.

Example

AT+QSMTPCLR	//Clear the recipients, subject, body and attachments for the email.
OK	
AT+QSMTPDST?	//Query the recipients of the email.
OK	
AT+QSMTPSUB?	//Query the subject of the email.
+QSMTPSUB: 0,""	
OK	
AT+QSMTPATT?	//Query the attachments of the email.
OK	

2.3.7. AT+QSMTPPUT Send an Email

It may take some time for an email to be completely sent, which depends on the total size of attachments and network status. Please do not send the email again before receiving **+QSMTPPUT: <err>,<protocol_error>** which indicates the ending of sending an email. If **<err>** is not 0, the email can be resent by executing **AT+QSMTPPUT=<timeout>** directly.

AT+QSMTPPUT Send an Email	
Test Command **AT+QSMTPPUT=?**	Response **+QSMTPPUT: (**range of supported **<timeout>**s**)** **OK**
Write Command **AT+QSMTPPUT=<timeout>**	Response If the format is correct and it is not sending an email: **OK** **+QSMTPPUT: <err>,<protocol_error>** If there is any error: **+CME ERROR: <err>**
Maximum Response Time	Determined by **<timeout>**
Characteristics	/

Parameter

<timeout>	Integer type. The maximum time to send an email. The range is 60–65535. Unit: second.
<err>	Integer type. The error code of the operation. See *Chapter 5* for details. If it is 0, it means the operation is successful.
<protocol_error>	Integer type. For reference only. Indicates the original error code from SMTP server which is defined in SMTP protocol. For details, see *Chapter 6* for details. If it is 0, it is invalid.

Example

AT+QSMTPPUT=300 **OK**	//Send the email and the maximum time is 300 s.
+QSMTPPUT: 0,0	//The email has been sent successfully.

3 Examples

3.1. Send an Email without SSL

Sending an email without SSL means that SSL function will not be used, and the email will be sent with insecure connection. For example:

```
//Step 1: Configure and activate the PDP context.
AT+QICSGP=1,1,"UNINET","","",1        //Configure PDP context 1. APN is "UNINET" for
OK                                      China Unicom.
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+QSMTPCFG="contextid",1             //Set the PDP context ID as 1. The PDP context ID
OK                                      must be activated first.
//Step 2: Configure SMTP server and user account.
AT+QSMTPCFG="ssltype",0               //Set the SSL type as "without SSL" for SMTP. In
                                         this case, SSL function will not be used, and
                                         emails will be sent with insecure connection.
AT+QSMTPCFG="smtpserver","smtp.163.com",25  //Set the IP address or domain name and port of
OK                                      SMTP server. The port of SMTP server depends
                                        on mail service provider.
AT+QSMTPCFG="account","sishen664551","wq664551"  //Set username and password.
OK
AT+QSMTPCFG="sender","sishen664551","sishen664551@163.com"  //Set sender name and sender
OK                                                     address. The sender's name
                                                       will be shown when the email
                                                       is received.
//Step 3: Edit the email content.
AT+QSMTPDST=1,1,"quectel_test@163.com"   //Add the recipient and the recipient type is all
OK                                        recipients.
AT+QSMTPDST=1,2,"quectel_test@21cn.com"  //Add the recipient and the recipient type is CC
OK                                        recipients.
AT+QSMTPDST?
```

+QSMTPDST: 1,"quectel_test@163.com"
+QSMTPDST: 2,"quectel_test@21cn.com"

OK
AT+QSMTPSUB=0,"TEST SMTP"   //Edit subject and the character set of the body is
OK   ASCII.
AT+QSMTPSUB?   //Query the subject of email.
+QSMTPSUB: 0,"TEST SMTP"

OK
AT+QSMTPBODY=0,100,120   //Edit email body and the character set of the body
CONNECT   is ASCII. The maximum input length is 100 bytes
<Input 100 bytes data>   and the maximum input time is 120 s.
+QSMTPBODY: 100

OK
AT+QFUPL="UFS:smtp1.txt",100,200,1   //Upload a file to UFS. The file will be saved as
CONNECT   "smtp1.txt" and the maximum size of file is 100
<Input 100 bytes data>   bytes. 200 indicates timeout, and 1 indicates
+QFUPL: 100,707   ACK mode. See *document [4]* for more details.

OK
AT+QFLST="*"   //List the file information in UFS.
+QFLST: "UFS:smtp1.txt",100

OK
AT+QSMTPATT=1,1,"UFS:smtp1.txt"   //Add an attachment for email and the file index is 1.
OK
AT+QSMTPATT?   //Query the attachment.
+QSMTPATT: 1,"UFS:smtp1.txt",100

OK
//Step 4: Send the email.
AT+QSMTPPUT=300   //Send the email and the maximum time is 300 s.
OK
//It may take a few minutes.
+QSMTPPUT: 0,0   //Send email successfully.
//Step 5: Clear the email content and deactivate the PDP context.
AT+QSMTPCLR   //Clear recipients, subject, body and attachments.
OK
AT+QFDEL="UFS:smtp.txt"   //Delete the file as attachment.
OK
//Please repeat *Step 3* and *Step 4* to re-send emails. Of course, you can also repeat *Step 2* to *Step 4* to
re-send emails.

```
AT+QIDEACT=1                        //Deactivate the PDP context which is activated for
OK                                       SMTP.
```

3.2. Send an Email with SSL

Sending an email with SSL means that emails will be sent over SSL/TLS encrypted SMTP. The port of SMTP server depends on the mail service provider, and it is the port 465 or 587 usually. As compared with sending email without SSL, sending email over SSL additionally needs SMTP server and user account configuration.

```
//Configure SSL type.
AT+QSMTPCFG="ssltype",1             //Set the SSL type as 1, which means emails will be sent over
OK                                   SSL.
AT+QSMTPCFG="sslctxid",1            //Choose SSL context 1 for SMTP.
OK
AT+QSSLCFG="ciphersuite",1,0xffff   //Configure SSL cipher suite type as 0xffff, which means all
OK                                    cipher suite types will be supported.
AT+QSSLCFG="seclevel",1,0           //Configure SSL security level as 0 which means the SSL CA
OK                                    certificate is not needed.
AT+QSSLCFG="sslversion",1,1         //Configure SSL version as 1 which means TLS1.0.
OK
//Configure SMTP server.
AT+QSMTPCFG="smtpserver","smtp.163.com",25    //Set SMTP server address and port.
OK
//As the SMTP server is different, the account information will be different as well. As an example, the
following information is provided.
AT+QSMTPCFG="account","sishen664551","wq664551"      //Set username and password.
OK
AT+QSMTPCFG="sender","sishen664551","sishen664551@163.com"   //Set sender name and
OK                                                             sender address.
```

3.3. Send an Email with STARTTLS

Sending an email with STARTTLS means that the normal insecure connection will be upgraded to secure one through STARTTLS function, thus for sending the mail data. In this case, there is also a need for SMTP server and user account configuration. The port of SMTP server depends on the mail service provider, and it is the port 25, 465 or 587 usually.

```
//Configure SSL type.
AT+QSMTPCFG="ssltype",2             //Set the SSL type as 2, which means emails will be sent
```

```
OK                                                over STARTTLS.
AT+QSMTPCFG="sslctxid",1            //Choose SSL context 1 for SMTP.
OK
AT+QSSLCFG="ciphersuite",1,0xffff      //Configure SSL cipher suite type as 0xffff, which means
OK                                                all cipher suite types will be supported.
AT+QSSLCFG="seclevel",1,0            //Configure SSL security level as 0, which means the
OK                                                 SSL CA certificate is not needed.
AT+QSSLCFG="sslversion",1,1           //Configure SSL version as 1 which means TLS1.0.
OK
//Configure SMTP server.
AT+QSMTPCFG="smtpserver","smtp.163.com",25        //Set SMTP server address and port.
OK
//As the SMTP server is different, the account information will be different as well. As an example, the
following information is provided.
AT+QSMTPCFG="account","sishen664551","wq664551"    //Set username and password.
OK
AT+QSMTPCFG="sender","sishen664551","sishen664551@163.com"    //Set sender name and
OK                                                                            sender address.
```

4 Error Handling

4.1. SMTP AT Command Execution Fails

When executing SMTP AT commands, if response **ERROR** is received from the module, please check whether the (U)SIM card is inserted, and whether **+CPIN: READY** is returned when executing **AT+CPIN?**. If **+CPIN: READY** is not returned, the (U)SIM card is not ready.

4.2. PDP Activation Fails

If it is failed to activate a PDP context by **AT+QIACT**, please check the following configurations:

1. Query whether the PS domain is attached or not by **AT+CGATT?**. If not, please execute **AT+CGATT=1** to attach PS domain.
2. Query the PS domain status by **AT+CGREG?** and make sure the PS domain has been registered.
3. Query the PDP context parameters by **AT+QICSGP=<contextID>** and make sure the APN of the specified PDP context has been set.
4. Make sure the specified PDP context ID is neither used by PPP nor activated by **AT+CGACT**.
5. According to 3GPP specifications, the module only supports three PDP contexts activated simultaneously, so please make sure the number of activated PDP contexts is no more than 3.

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

4.3. DNS Parse Fails

When executing **AT+QSMTPPUT**, if **+QSMTPPUT: 653,0** is returned, please check the following aspects:
1. Make sure the domain name of SMTP server is valid.
2. Query the status of PDP context by **AT+QIACT?** to make sure the specified PDP context has been activated successfully.

4.4. Error Response of AT+QSMTPPUT

+QSMTPPUT: <err>,<protocol_error> will be returned after executing **AT+QSMTPPUT**.

If **<err>** is not 0, it indicates the sending fails. Please resend the email. If resending is not successful, please deactivate the PDP context by **AT+QIDEACT** and re-activate the PDP context by **AT+QIACT** to resolve this issue. If activating the PDP context fails, see *Chapter 4.2* to resolve it.

If the **<protocol_error>** is not 0, it indicates the error code replied from SMTP server. Please check the issue according to the protocol error code. For example, if **<protocol_error>** is 535 (authentication failed), it indicates **<username>** or **<password>** may be wrong. If **<protocol_error>** is 530 (access denied), it means the emails are sent too often, and the SMTP server rejects to post the emails. For more details, see *RFC2821* (Simple Mail Transfer Protocol).

5 Summary of Error Codes

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

Table 3: Summary of Error Codes

<err>	Meaning
651	Unknown error
652	The SMTP server is busy, such as uploading the body or sending an email.
653	Failed to get IP address according to the domain name.
654	Network error, such as failed to activate GPRS/CSD context, failed to establish the TCP connection with the SMTP server or failed to send an email to the SMTP server, etc.
655	Unsupported authentication type
656	The connection for the SMTP server is closed by peer.
657	GPRS/CSD context is deactivated.
658	Timeout
659	No recipient for the SMTP server
660	Failed to send an email
661	Failed to open a file
662	No enough memory for the attachment
663	Failed to save the attachment
664	The input parameter is wrong
665	SSL authentication failed
666	Service not available, closing transmission channel

667	Requested mail action not taken: mailbox unavailable
668	Requested action aborted: local error in processing
669	Requested action not taken: insufficient system storage
670	Syntax error, command unrecognized
671	Syntax error in parameters or arguments
672	Command not implemented
673	Bad sequence of commands
674	Command parameter not implemented
675	<domain> does not accept mail (see *RFC1846*)
676	Access denied
677	Authentication failed
678	Requested action not taken: mailbox unavailable
679	User not local; please try <forward-path>
680	Requested mail action aborted: exceeded storage allocation
681	Requested action not taken: mailbox name not allowed
682	Transaction failed

6 Summary of SMTP Protocol Error Codes

The protocol error code **<protocol_error>** indicates an error replied from SMTP server. See *RFC2821* (Simple Mail Transfer Protocol). The details about **<protocol_error>** are described in the following table.

Table 4: Summary of SMTP Protocol Error Codes

<protocol_error>	Meaning
421	Service not available, closing transmission channel
450	Requested mail action not taken: mailbox unavailable
451	Requested action aborted: local error in processing
452	Requested action not taken: insufficient system storage
500	Syntax error, command unrecognized
501	Syntax error in parameters or arguments
502	Command not implemented
503	Bad sequence of commands
504	Command parameter not implemented
521	<domain> does not accept mail (see *RFC1846*)
530	Access denied
535	Authentication failed
550	Requested action not taken: mailbox unavailable
551	User not local; please try <forward-path>
552	Requested mail action aborted: exceeded storage allocation
553	Requested action not taken: mailbox name not allowed

554	Transaction failed

7 **Appendix References**

Table 5: Related Documents

Document Name
[1] Quectel_EC200x-CN&EC800x-CN_TCP(IP)_Application_Note
[2] Quectel_EC200x-CN&EC800x-CN_AT_Reference_Manual
[3] Quectel_EC200x-CN&EC800x-CN_SSL_Application_Note
[4] Quectel_EC200x-CN&EC800x-CN_FILE_Application_Note

Table 6: Terms and Abbreviations

Abbreviation	Description
ACK	Acknowledgement
BCC	Blind Carbon Copy
CC	Carbon Copy
CSD	Circuit Switched Data
DNS	Domain Name Server
DTR	Data Terminal Ready
GPRS	General Packet Radio Service
PDP	Packet Data Protocol
PPP	Point-to-Point Protocol
PS	Packet Switch
SD	Secure Digital
SMTP	Simple Mail Transfer Protocol

SSL	Security Socket Layer
TA	Terminal Adapter
TCP	Transmission Control Protocol
TLS	Transport Layer Security
UFS	Universal Flash Storage
(U)SIM	(Universal) Subscriber Identity Module