EC200U&EG915U Series
FTP(S) Application Note

LTE Standard Module Series

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About the Document

Revision History

Version	Date	Author	Description
-	2020-05-28	Kruskal ZHU	Creation of the document
1.0	2020-06-08	Kruskal ZHU	First official release
1.1	2021-08-17	Kruskal ZHU	Added an applicable module series EG915U.

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1 Introduction

Quectel EC200U and EG915U series modules support FTP and FTPS file transfer protocols (hereinafter referred to as "FTP(S)").

The FTP (File Transfer Protocol) is a standard network protocol used for the transfer of computer files between a client and server on a computer network, with high transmission rate.

FTPS (also known as FTP over SSL, and FTP Secure) is an extension to the commonly used File Transfer Protocol (FTP) that adds support for the Transport Layer Security (TLS) and, formerly, the Secure Sockets Layer cryptographic protocols.

This document introduces how to use the FTP(S) function of the following Quectel modules through AT commands.

1.1. AT Command Introduction

1.1.1. 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 to its previous value or the default settings, unless otherwise specified.
- **Underline** Default setting of a parameter.

1.1.2. 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 1: Types of AT Commands

Command Type	Syntax	Description
Test Command	**AT+<cmd>=?**	Test the existence of corresponding Write 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.

1.2. 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.

1.3. The Process of Using FTP(S) AT Commands

As EC200U and EG915U series modules support FTP(S) protocol, file and directory on FTP(S) server can be operated via FTP(S) 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**. For more details, see ***document [1]***. If QoS settings need to be updated, configure them by **AT+CGQMIN** and **AT+CGQREQ**. For more details, see OLE_LINK1***document [2]***.
2. Activate the PDP context via **AT+QIACT**. For more details, see ***document [1]***.
3. Configure the PDP context ID for FTP(S) by **AT+QFTPCFG="contextid",<contextID>**. The PDP context should be activated first.

Step 2: Configure user account and FTP(S) server.

1. Configure account information by **AT+QFTPCFG="account",<username>,<password>**.

2. Configure file type by **AT+QFTPCFG="filetype",<file_type>**. The file type of the transferred data between FTP(S) server and client can be binary data or ASCII data.
3. Configure the transfer mode by **AT+QFTPCFG="transmode",<transmode>**. The transfer mode means either the FTP(S) server or client listens on a port for data connection. Please note that **AT+QFTPCFG="transmode",1** must be set for FTPS operations, because FTPS does not support active mode currently.
4. Configure the response timeout value by **AT+QFTPCFG="rsptimeout",<timeout>**.
5. If the module works as FTPS client, execute the following commands:
   1) Execute **AT+QFTPCFG="ssltype",1**.
   2) Execute **AT+QFTPCFG="sslctxid",<sslctxid>** to set **<sslctxid>**.
   3) Execute **AT+QSSLCFG** to configure the specified **<sslctxid>**. For more details, see ***document [3]***.

Step 3: Login to FTP(S) server.

Login to FTP(S) server by **AT+QFTPOPEN=<hostname>,<port>**. If URC **+QFTPOPEN: 0,0** is returned, it indicates the operation is successful. Please note that the ports of FTPS and FTP server are different. The port of FTPS server depends on FTPS server provider, and it is 990 usually.

Step 4: File operation.

1. Set the current directory by **AT+QFTPCWD**.
2. Upload a file to FTP(S) server.
   1) Upload a file from UFS or SD card via **AT+QFUPL**, then upload the file to FTP(S) server by **AT+QFTPPUT**. After uploading the file to FTP(S) server successfully, the file should be deleted by **AT+QFDEL**. For more details, see ***document [4]***.
   2) Upload a file to FTP(S) server through COM port by **AT+QFTPPUT**, then the module will enter data mode. **+++** can be inputted to finish the file uploading process.
3. Download a file from FTP(S) server by **AT+QFTPGET**. The file can be outputted to COM port or saved to UFS or SD card. If the file is outputted to COM port, the module will enter data mode.
4. Get the size of the file on FTP(S) server by **AT+QFTPSIZE**.
5. Get the length of data transferred between FTP(S) server and client by **AT+QFTPLEN**.
6. Delete a file on FTP(S) server by **AT+QFTPDEL**.
7. Rename a file on FTP(S) server by **AT+QFTPRENAME**.

Step 5: Directory operation on FTP(S) server.

1. Set the current directory by **AT+QFTPCWD**.
2. Create a file by **AT+QFTPMKDIR**.
3. List the content of a directory by **AT+QFTPLIST**.
4. List file names of a directory by **AT+QFTPNLST**.
5. Rename a file or folder by **AT+QFTPRENAME**.
6. Delete a folder by **AT+QFTPRMDIR**.
7. List standardized file and directory information by **AT+QFTPMLSD**.
8. Get the file modification time on FTP(S) server by **AT+QFTPMDTM**.

Step 6: Close connection with FTP(S) server.

Close the connection with FTP(S) server by **AT+QFTPCLOSE**. If **+QFTPCLOSE: 0,0** URC is reported, it indicates the operation is successful and **Step 3** to **Step 6** can be repeated.

Step 7: Deactivate PDP context.

Deactivate the PDP context by **AT+QIDEACT=<contextID>**. For more details, see ***document [1]***.

1.4. Description of Data Mode

The COM port of EC200U and EG915U series modules have two working modes: AT command mode and data mode. In AT command mode, the inputted data via COM port will be regarded as AT command, while in data mode, it will be regarded as data.

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

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

When executing **AT+QFTPPUT**, **AT+QFTPGET**, **AT+QFTPLIST** and **AT+QFTPNLST**, if the local file path is "COM:", which means data will be received from or outputted to COM port, the COM port will enter data mode. You can input **+++** or change DTR level from low to high to make the port exit data mode. In addition, you can reenter data mode by executing **ATO** command after **AT+QFTPGET**, **AT+QFTPLIST** and **AT+QFTPNLST** are executed. And you cannot reenter data mode via **ATO** when after **AT+QFTPPUT** is executed.

2 Description of FTP(S) AT Commands

2.1. AT+QFTPCFG Configure Parameters for FTP(S) Server

This command configures FTP(S) server parameters, including user account, file type, transfer mode and context ID. If the optional parametesr of Write Command are omitted, it will query the current settings.

AT+QFTPCFG Configure Parameters for FTP(S) Server	
Test Command **AT+QFTPCFG=?**	Response **+QFTPCFG: "account",<username>,<password>** **+QFTPCFG: "filetype",(**list of supported **<file_type>**s**)** **+QFTPCFG: "transmode",(**list of supported **<transmode>**s**)** **+QFTPCFG: "contextid",(**range of supported **<contextID>**s**)** **+QFTPCFG: "rsptimeout",(**range of supported **<timeout>**s**)** **+QFTPCFG: "ssltype",(**range of supported **<SSL_type>**s**)** **+QFTPCFG: "sslctxid",(**range of supported **<sslctxid>**s**)** **+QFTPCFG: "data_address",(**range of supported **<data_address_type>**s**),(**range of supported **<data_timeout>**s**)** **OK**
Write Command **AT+QFTPCFG="account"[,<username>,<password>]**	Response If the optional parameters are omitted, query the current setting: **+QFTPCFG: "account",<username>,<password>** **OK** If the optional parameters are specified, configure the user account: **OK** Or **+CME ERROR: <err>**
Write Command **AT+QFTPCFG="filetype"[,<file_type>]**	Response If the optional parameter is omitted, query the current setting:

	+QFTPCFG: "filetype",<file_type> **OK** If the optional parameter is specified, configure the file type: **OK** Or **+CME ERROR: <err>**
Write Command **AT+QFTPCFG="transmode"[,<transmode>]**	Response If the optional parameter is omitted, query the current setting: **+QFTPCFG: "transmode",<transmode>** **OK** If the optional parameter is specified, configure the transfer mode: **OK** Or **+CME ERROR: <err>**
Write Command **AT+QFTPCFG="contextid"[,<contextID>]**	Response If the optional parameter is omitted, query the current setting: **+QFTPCFG: "contextid",<contextID>** **OK** If the optional parameter is specified, configure the context ID: **OK** Or **ERROR** Or **+CME ERROR: <err>**
Write Command **AT+QFTPCFG="rsptimeout"[,<timeout>]**	Response If the optional parameter is omitted, query the current setting: **+QFTPCFG: "rsptimeout",<timeout>** **OK** If the optional parameter is specified, configure the response timeout: **OK** Or **+CME ERROR: <err>**

Write Command **AT+QFTPCFG="ssltype"[,<SSL_type>]**	Response If the optional parameter is omitted, query the current setting: **+QFTPCFG: "ssltype",<SSL_type>** **OK** If the optional parameter is specified, configure the SSL type: **OK** Or **+CME ERROR: <err>**
Write Command **AT+QFTPCFG="sslctxid"[,<sslctxid>]**	Response If the optional parameter is omitted, query the current setting: **+QFTPCFG: "sslctxid",<sslctxid>** **OK** If the optional parameter is specified, configure the SSL context ID: **OK** Or **+CME ERROR: <err>**
Write Command **AT+QFTPCFG="data_address"[,<data_address_type>[,<data_timeout>]]**	Response If the optional parameters are omitted, query the current configuration: 1) If **<data_address_type>** is equal to 2: **+QFTPCFG: "data_address",<data_address_type>,<data_timeout>** **OK** 2) If **<data_address_type>** is not equal to 2: **+QFTPCFG: "data_address",<data_address_type>** **OK** If the optional parameters are specified, configure the data connection address: **OK** Or **+CME ERROR: <err>**
Maximum Response Time	300 ms
Characteristics	This command takes effect immediately. The configuration will not be saved.

Parameter

<username>	String type. The user name for authentication. The maximum size is 255 bytes.
<password>	String type. The password for authentication. The maximum size is 255 bytes.
<file_type>	Integer type. The type of transmission data. 0 Binary 1 ASCII
<transmode>	Integer type. Whether the FTP(S) server or client listens on a port for data connection. 0 Active mode, the module will listen the data connection from the FTP server on the client port 1 Passive mode, the module will listen the data connection from the client on the FTP server port
<contextID>	Integer type. PDP context ID. Range: 1–7. Default: 1. Activate PDP context ID by **AT+QIACT** before using **AT+QFTPOPEN**. For more details, see ***document [1]***.
<timeout>	Integer type. Range: 20–180. Default: 90. Unit: second. Generally, it is the maximum response time for most **+QFTPXXX: xx,xx** commands after the **OK** result code is returned, except **AT+QFTPPUT**/**QFTPGET**/**QFTPLST**/**QFTPNLST** commands. The rules for these four commands are shown as below: 1) When the command has been sent, but **CONNECT** has not been outputted yet, this parameter indicates the maximum response time for **CONNECT** to be outputted after the command has been sent. 2) When the module has entered data mode, this parameter indicates the maximum interval time between two packets of received/transferred data. 3) When the **<local_name>** is not "COM:", it indicates the maximum interval time between two packets of received/transferred data.
<SSL_type>	Integer type. The module works as FTP client or FTPS client. 0 FTP client 1 FTPS implicit encryption 2 FTPS explicit encryption
<sslctxid>	Integer type. The SSL context ID. Range: 0–5. Default: 0. You can configure the SSL parameters by **AT+QSSLCFG**. For more details, see ***document [3]***.
<data_address_type>	Integer type. FTP(S) data connection address selection. 0 Use server dispatched address 1 Use FTP(S) control session address 2 Use FTP(S) control session address in priority. If the connection fails, an address assigned by server will be used.
<data_timeout>	Integer type. The time required to switch the address assigned by the server when the FTP(S) control session address connection fails. It is valid only

	when **<data_address_type>** is 2. Range: 15–50. Default: 25. Unit: second.
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.

NOTE

Since FTPS does not currently support active mode, you must set **<transmode>** to 1 when operating FTPS.

2.2. AT+QFTPOPEN Login to FTP(S) Server

This command logs in to FTP(S) server. The PDP context should be activated by **AT+QIACT** first. **+QFTPOPEN: <err>,<protocol_error>** indicates the operation result of **AT+QFTPOPEN** and it should be outputted within **<timeout>** configured by **AT+QFTPCFG**.

AT+QFTPOPEN Login to FTP(S) Server	
Test Command **AT+QFTPOPEN=?**	Response **+QFTPOPEN: <hostname>,<port>** **OK**
Write Command **AT+QFTPOPEN=<hostname>[,<port>]**	Response **OK** **+QFTPOPEN: <err>,<protocol_error>** Or **+CME ERROR: <err>**
Maximum Response Time	125 s
Characteristics	This command takes effect immediately. The configuration will not be saved.

Parameter

<hostname>	String type. The IP address and domain name of the FTP(S) server. The maximum size is 255 bytes.
<port>	Integer type. The port of the FTP(S) server. Range: 1–65535. Default: 21.
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.
<protocol_error>	Integer type. For reference only. It indicates the original error code from FTP(S) server which is defined in FTP(S) protocol. For more details, see ***Chapter 6***. If it is 0, it is invalid.

Example

```
AT+QFTPOPEN="101.95.183.122",21          //Login to FTP server.
OK

+QFTPOPEN: 0,0
AT+QFTPOPEN="quectel.3322.org",990       //Login to FTPS server.
OK

+QFTPOPEN: 0,0
```

NOTE

Please note that the FTPS and FTP server ports are different. The port of FTPS server depends on FTPS server provider, and it is usually 990.

2.3. AT+QFTPCWD Configure the Current Directory on FTP(S) Server

The command configures the current directory on FTP(S) server. If **OK** is returned, **+QFTPCWD: <err>,<protocol_error>** should be outputted within **<timeout>** configured by **AT+QFTPCFG**. All the files and directory operation will be configured in the current directory.

AT+QFTPCWD Configure the Current Directory on FTP(S) Server	
Test Command **AT+QFTPCWD=?**	Response **+QFTPCWD: <path_name>** **OK**
Write Command **AT+QFTPCWD=<path_name>**	Response **OK** **+QFTPCWD: <err>,<protocol_error>** Or **+CME ERROR: <err>**
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**
Characteristics	This command takes effect immediately. The configuration will not be saved.

Parameter

<path_name>	String type. A directory path on FTP(S) server. The maximum size is 255 bytes. The

	root path of FTP(S) server is "/".
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.
<protocol_error>	Integer type. For reference only. It indicates the original error code from FTP(S) server which is defined in FTP(S) protocol. For more details, see ***Chapter 6***. If it is 0, it is invalid.

2.4. AT+QFTPPWD Get the Current Directory on FTP(S) Server

This command gets the current directory on FTP(S) server. If **OK** is returned, **+QFTPPWD: 0,<path_name>** or **+QFTPPWD: <err>,<protocol_error>** should be outputted within **<timeout>** configured by **AT+QFTPCFG**.

AT+QFTPPWD Get the Current Directory on FTP(S) Server	
Test Command **AT+QFTPPWD=?**	Response **OK**
Execution Command **AT+QFTPPWD**	Response **OK** If the current directory is gotten successfully: **+QFTPPWD: 0,<path_name>** If it fails to get the current directory: **+QFTPPWD: <err>,<protocol_error>** Or **+CME ERROR: <err>**
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**
Characteristics	This command takes effect immediately. The configuration will not be saved.

Parameter

<path_name>	String type. A directory path on FTP(S) server. The maximum size is 255 bytes. The root path of FTP(S) server is "/".
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.
<protocol_error>	Integer type. For reference only. It indicates the original error code from FTP(S) server which is defined in FTP(S) protocol. For more details, see ***Chapter 6***. If it is 0, it is invalid.

2.5. AT+QFTPPUT Upload a File to FTP(S) Server

This command uploads a file to FTP(S) server. The file data can be uploaded via COM port, and then the module will enter data mode. Inputting **+++** can abort the file uploading. A local file can be uploaded to FTP(S) server and the file can be UFS or SD files. A file can be uploaded to UFS or SD card by **AT+QFUPL**, and then uploaded to FTP(S) server via **AT+QFTPPUT** command. After a file is uploaded successfully, the local file can be deleted by **AT+QFDEL**. For more details, see ***document [4]***.

A file can be uploaded from specified file position by **<startpos>**. If the **<local_name>** is "COM:", **CONNECT** should be outputted within **<timeout>** configured by **AT+QFTPCFG**. If the **<local_name>** is not "COM:", **OK** will be outputted first, and then **+QFTPPUT: 0,<transferlen>** or **+QFTPPUT: <err>,<protocol_error>** will be outputted after data has been transferred completely.

If the module has entered data mode or the **<local_name>** is not "COM:", the **<timeout>** configured by **AT+QFTPCFG** indicates the maximum interval time between two packets of received/transferred data.

AT+QFTPPUT Upload a File to FTP(S) Server	
Test Command **AT+QFTPPUT=?**	Response **+QFTPPUT: <file_name>,<local_name>,<startpos>,<uploadlen>,<beof>** **OK**
Write Command When **<local_name>** is "COM:" **AT+QFTPPUT=<file_name>,<local_name>[,<startpos>[,<uploadlen>,<beof>]]**	Response **CONNECT** <Input file data> **OK** If the file is uploaded successfully: **+QFTPPUT: 0,<transferlen>** If it fails to upload the file: **+QFTPPUT: <err>,<protocol_error>** Or **+CME ERROR: <err>**
Write Command When **<local_name>** is not "COM:" **AT+QFTPPUT=<file_name>,<local_name>[,<startpos>]**	Response **OK** If the file is uploaded successfully: **+QFTPPUT: 0,<transferlen>** If it fails to upload the file: **+QFTPPUT: <err>,<protocol_error>** Or

	+CME ERROR: <err>
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**
Characteristics	This command takes effect immediately. The configuration will not be saved.

Parameter

<file_name>	String type. The file name on FTP(S) server. The maximum size is 255 bytes.
<local_name>	String type. The local file name. The maximum size is 63 bytes. If it is "COM:", the file received by COM port will be uploaded to the FTP server. Otherwise, the file specified by **<local_name>** will be uploaded to the FTP server. For more details, see ***document [4]***.
<startpos>	Integer type. The start position of the file to be uploaded. Range: 0–4294967295. Default: 0. If **<uploadlen>** and **<beof>** are specified, **<startpos>** should be the position where the data continues to be uploaded to the same file. Unit: byte.
<uploadlen>	Integer type. The length of data to be uploaded. It is valid only when **<local_name>** is "COM:". When the length of data uploaded via COM port reaches **<uploadlen>**, the module will exit data mode. Range: 0–4294967295. Unit: byte.
<beof>	Integer type. Whether it is the last packet of data to be uploaded. It is valid only when **<local_name>** is "COM:". 0 Not the last packet of data. When the data length reaches **<uploadlen>**, the module will exit data mode, and **+QFTPPUT: 0,<transferlen>** will be outputted. In such case, please do not disconnect data connection, as the remained data needs to be uploaded to the same file on FTP. 1 The last packet of data. When the data length reaches **<uploadlen>**, the module will exit data mode and data connection can be disconnected, then **+QFTPPUT: 0,<transferlen>** will be outputted.
<transferlen>	Integer type. The length of successfully transferred data. Unit: byte.
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.
<protocol_error>	Integer type. For reference only. It indicates the original error code from FTP(S) server which is defined in FTP(S) protocol. For more details, see ***Chapter 6***. If it is 0, it is invalid.

NOTE

If **<uploadlen>** and **<beof>** are omitted, all data will be uploaded to FTP(S) server.

Example

```
//Upload a file via COM port to FTP(S) server.
AT+QFTPPUT="test.txt","COM:",0                  //All data will be saved as test.txt on FTP(S) server.
CONNECT
<Input file data>
<+++>
OK

+QFTPPUT: 0,1000
//Upload a file via COM port to FTP(S) server twice in 1024 bytes each time.
AT+QFTPPUT="test.txt","COM:",0,1024,0            //It is not the last 1024 bytes of test.txt.
CONNECT
<Input file data>
OK                                               //Data length reaches 1024 bytes.

+QFTPPUT: 0,1024
AT+QFTPPUT="test.txt","COM:",1024,1024,1         //It is the last 1024 bytes of test.txt.
CONNECT
<Input file data>
OK                                               //Data length reaches 1024 bytes.

+QFTPPUT: 0,1024
//Upload a file to UFS.
AT+QFUPL="UFS:test1.txt",1000,300,1              //Upload a file to UFS, the file will be saved as "test1.txt" and the maximum size of file is 1000 bytes. 300 indicates timeout, and 1 indicates ACK mode. For more details, see document [4].
CONNECT
<Input 1000 bytes data>
+QFUPL: 1000,707

OK
AT+QFLST="UFS:*"
+QFLST: "UFS:test1.txt",1000

OK
AT+QFTPPUT="test.txt","UFS:test1.txt",0          //Upload "UFS:test1.txt" to FTP(S) server, the file will be saved as test.txt on FTP(S) server.
OK

+QFTPPUT: 0,1000
AT+QFDEL="UFS:test1.txt"
OK
```

2.6. AT+QFTPGET Download a File from FTP(S) Server

This command downloads a file from FTP(S) server. The file can be outputted via COM port by **AT+QFTPGET="filename","COM:"**. The module will enter data mode on receiving data from server. After the data is transferred completely, the module will exit data mode automatically and output **+QFTPGET: 0,<transferlen>**. The file can be saved to UFS or SD card by **AT+QFTPGET="filename","UFS:localname"** or **AT+QFTPGET="filename","SD:localname"**. After the file has been transferred completely, the module will output **+QFTPGET: 0,<transferlen>**.

If the **<local_name>** is "COM:", **CONNECT** should be outputted within **<timeout>** configured by **AT+QFTPCFG**. If the **<local_name>** is not "COM:", **OK** will be outputted first, and then **+QFTPGET: 0,<transferlen>** or **+QFTPGET: <err>,<protocol_error>** will be outputted after data has been transferred completely.

If the module has entered data mode or the **<local_name>** is not "COM:", the **<timeout>** configured by **AT+QFTPCFG** indicates the maximum interval time between two packets of received/transferred data.

AT+QFTPGET Download a File from FTP(S) Server	
Test Command **AT+QFTPGET=?**	Response **+QFTPGET: <file_name>,<local_name>,<startpos>,<downloadlen>** **OK**
Write Command When **<local_name>** is "COM:" **AT+QFTPGET=<file_name>,<local_name>[,<startpos>[,<downloadlen>]]**	Response **CONNECT** <Output file data> **OK** If the file is downloaded successfully: **+QFTPGET: 0,<transferlen>** If it fails to download the file: **+QFTPGET: <err>,<protocol_error>** Or **+CME ERROR: <err>**
Write Command When **<local_name>** is not "COM:" **AT+QFTPGET=<file_name>,<local_name>[,<startpos>]**	Response **OK** If the file is downloaded successfully: **+QFTPGET: 0,<transferlen>** If it fails to download the file: **+QFTPGET: <err>,<protocol_error>**

	Or **+CME ERROR: <err>**
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**
Characteristics	This command takes effect immediately. The configuration will not be saved.

Parameter

<file_name>	String type. The file name on FTP(S) server. The maximum size is 255 bytes.
<local_name>	String type. The local file name. The maximum size is 63 bytes. If it is "COM:", the file data will be outputted via COM port. If it is not "COM:", the data will be saved to UFS or SD card. It is strongly recommended to save the file in UFS or SD card. Then the file can be read by **AT+QFREAD**. For more details, see ***document [4]***.
<startpos>	Integer type. The start position of the file to be downloaded. Range: 0–4294967295. Default: 0. Unit: byte.
<downloadlen>	Integer type, the length of data to be downloaded. It is valid only when **<local_name>** is "COM:". If this parameter is specified, the module will output **<downloadlen>** bytes to COM port and exit data mode. And data can be downloaded from **<startpos>** by the same AT command if there is any data left. Range: 0–4294967295. Unit: byte.
<transferlen>	Integer type. The length of actually transferred data. If it is less than **<downloadlen>**, it means the whole file is transferred completely. Unit: byte.
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.
<protocol_error>	Integer type. For reference only. It indicates the original error code from FTP(S) server which is defined in FTP(S) protocol. For more details, see ***Chapter 6***. If it is 0, it is invalid.

NOTE

When **<local_name>** is "COM:", if **<startpos>** and **<downloadlen>** are omitted, a whole file will be downloaded from FTP(S) server.

Example

```
//Download a file and the file is outputted via COM port.
AT+QFTPGET="test.txt","COM:",0          //Download a whole file from FTP(S) server.
CONNECT
<Output file data>
OK

+QFTPGET: 0,1000
//Download a file and the file is outputted via COM port twice in 500 bytes each time.
AT+QFTPGET="test.txt","COM:",0,500      //The size of test.txt is 1000 bytes, and the first download
                                          size is 500 bytes.
CONNECT
<Output file data>
OK

+QFTPGET: 0,500
AT+QFTPGET="test.txt","COM:",500,500    //Download the left 500 bytes.
CONNECT
<Output file data>
OK

+QFTPGET: 0,500
//Download a file and save it to UFS.
AT+QFTPGET="test.txt","UFS:test2.txt",0

OK

+QFTPGET: 0,1000
AT+QFLST="UFS:*"
+QFLST: "UFS:test2.txt",1000

OK
```

2.7. AT+QFTPSIZE Get the File Size on FTP(S) Server

This command gets the file size on FTP(S) server. If **OK** is returned, **+QFTPSIZE: 0,<file_size>** or **+QFTPSIZE: <err>,<protocol_error>** should be outputted within **<timeout>** configured by **AT+QFTPCFG**. Otherwise, the FTP(S) connection should be disconnected, and the network should be deactivated and reactivated.

AT+QFTPSIZE Get the File Size on FTP(S) Server	
Test Command **AT+QFTPSIZE=?**	Response **+QFTPSIZE: <file_name>** **OK**
Write Command **AT+QFTPSIZE=<file_name>**	Response **OK** If the file size is gotten successfully: **+QFTPSIZE: 0,<file_size>** If it fails to get the file size: **+QFTPSIZE: <err>,<protocol_error>** Or **+CME ERROR: <err>**
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**
Characteristics	This command takes effect immediately. The configuration will not be saved.

Parameter

<file_name>	String type. The file name on FTP(S) server. The maximum size is 255 bytes.
<file_size>	Integer type. The size of file on FTP(S) server. Unit: byte.
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.
<protocol_error>	Integer type. For reference only. It indicates the original error code from FTP(S) server which is defined in FTP(S) protocol. For more details, see ***Chapter 6***. If it is 0, it is invalid.

2.8. AT+QFTPDEL Delete a File on FTP(S) Server

This command deletes a specified file on FTP(S) server. If **OK** is returned, **+QFTPDEL: <err>,<protocol_error>** should be outputted within **<timeout>** configured by **AT+QFTPCFG**. Otherwise, the FTP(S) connection should be disconnected, and the network should be deactivated and reactivated.

AT+QFTPDEL Delete a File on FTP(S) Server	
Test Command **AT+QFTPDEL=?**	Response **+QFTPDEL: <file_name>**

	OK
Write Command **AT+QFTPDEL=<file_name>**	Response **OK** **+QFTPDEL: <err>,<protocol_error>** Or **+CME ERROR: <err>**
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**
Characteristics	/

Parameter

<file_name>	String type. The file name on FTP(S) server. The maximum size is 255 bytes.
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.
<protocol_error>	Integer type. For reference only. It indicates the original error code from FTP(S) server which is defined in FTP(S) protocol. For more details, see ***Chapter 6***. If it is 0, it is invalid.

2.9. AT+QFTPMKDIR Create a Folder on FTP(S) Server

This command creates a folder on FTP(S) server. If **OK** is returned, **+QFTPMKDIR: <err>,<protocol_error>** should be outputted within **<timeout>** configured by **AT+QFTPCFG**. Otherwise, the FTP(S) connection should be disconnected, and the network should be deactivated and reactivated.

AT+QFTPMKDIR Create a Folder on FTP(S) Server	
Test Command **AT+QFTPMKDIR=?**	Response **+QFTPMKDIR: <folder_name>** **OK**
Write Command **AT+QFTPMKDIR=<folder_name>**	Response **OK** **+QFTPMKDIR: <err>,<protocol_error>** Or **+CME ERROR: <err>**
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**

Characteristics	/

Parameter

<folder_name>	String type. The folder name on FTP(S) server. The maximum size is 255 bytes.
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.
<protocol_error>	Integer type. For reference only. It indicates the original error code from FTP(S) server which is defined in FTP(S) protocol. For more details, see ***Chapter 6***. If it is 0, it is invalid.

2.10. AT+QFTPRMDIR Delete a Folder on FTP(S) Server

This command deletes a specified folder on FTP(S) server. If **OK** is returned, **+QFTPRMDIR: <err>,<protocol_error>** should be outputted within **<timeout>** configured by **AT+QFTPCFG**. Otherwise, the FTP(S) connection should be disconnected and the network should be deactivated and reactivated.

AT+QFTPRMDIR Delete a Folder on FTP(S) Server	
Test Command **AT+QFTPRMDIR=?**	Response **+QFTPRMDIR: <folder_name>** **OK**
Write Command **AT+QFTPRMDIR=<folder_name>**	Response **OK** **+QFTPRMDIR: <err>,<protocol_error>** Or **+CME ERROR: <err>**
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**
Characteristics	/

Parameter

<folder_name>	String type. The folder name on FTP(S) server. The maximum size is 255 bytes.
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.
<protocol_error>	Integer type. For reference only. It indicates the original error code from FTP(S) server which is defined in FTP(S) protocol. For more details, see ***Chapter 6***. If it is

	0, it is invalid.

2.11. AT+QFTPLIST List Content of a Directory on FTP(S) Server

This command lists content of a directory on FTP(S) server. If the **<local_name>** is "COM:", **CONNECT** should be outputted within **<timeout>** configured by **AT+QFTPCFG**. If the **<local_name>** is not "COM:", **OK** will be returned first. And then **+QFTPLIST: 0,<transfer_size>** or **+QFTPLIST: <err>,<protocol_error>** will be outputted after the content has been transferred completely.

If the module has entered data mode or the **<local_name>** is not "COM:", the **<timeout>** configured by **AT+QFTPCFG** indicates the maximum interval time between two packets of received/transferred data.

AT+QFTPLIST List Content of a Directory on FTP(S) Server	
Test Command **AT+QFTPLIST=?**	Response **+QFTPLIST: <dirname>,<local_name>** **OK**
Write Command When **<local_name>** is "COM:" **AT+QFTPLIST=<dirname>[,<local_name>]**	Response **CONNECT** <Output content data> **OK** If the directory content is listed successfully: **+QFTPLIST: 0,<transfer_size>** If it fails to list the directory content: **+QFTPLIST: <err>,<protocol_error>** Or **+CME ERROR: <err>**
Write Command When **<local_name>** is not "COM:" **AT+QFTPLIST=<dirname>,<local_name>**	Response **OK** If the directory content is listed successfully: **+QFTPLIST: 0,<transfer_size>** If it fails to list the directory content: **+QFTPLIST: <err>,<protocol_error>** Or **+CME ERROR: <err>**
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**

Characteristics	This command takes effect immediately. The configuration will not be saved.

Parameter

<dirname>	String type. The folder name on FTP(S) server. The maximum size is 255 bytes. If it is ".", it will list the content of current directory configured by **AT+QFTPCWD**.
<local_name>	String type. The local storage location of the data from FTP(S) server. The maximum size is 63 bytes. Default: COM. If it is "COM:", the data will be outputted from the COM port. If it is not "COM:", the data can be saved to UFS or SD card. Then the file can be read via **AT+QFREAD**. For more details, see ***document [4]***.
<transfer_size>	Integer type. The size of transferred data from FTP(S) server. Unit: byte.
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.
<protocol_error>	Integer type. For reference only. It indicates the original error code from FTP(S) server which is defined in FTP(S) protocol. For more details, see ***Chapter 6***. If it is 0, it is invalid.

Example

```
//Get the content of current directory on FTP(S) server and the data is outputted via COM port.
AT+QFTPLIST="."
CONNECT
<Output content data>
OK

+QFTPLIST: 0,1000
//Get the content of a specified directory on FTP(S) server and save it to UFS.
AT+QFTPLIST="TESTDIR","UFS:test2.txt"
OK

+QFTPLIST: 0,1000
AT+QFLST="UFS:*"
+QFLST: "UFS:test2.txt",1000

OK
```

2.12. AT+QFTPNLST List File Names of a Directory on FTP(S) Server

This command lists file names of a directory on FTP(S) server. If the **<local_name>** is "COM:", **CONNECT** should be outputted within **<timeout>** configured by **AT+QFTPCFG**. If the **<local_name>** is

not "COM:", **OK** will be returned first. And then **+QFTPNLST: 0,<transfer_size>** or **+QFTPNLST: <err>,<protocol_error>** will be outputted after file names have been transferred completely.

If the module has entered data mode or the **<local_name>** is not "COM:", the **<timeout>** configured by **AT+QFTPCFG** indicates the maximum interval time between two packets of received/transferred data.

AT+QFTPNLIST List File Names of a Directory on FTP(S) Server	
Test Command **AT+QFTPNLST=?**	Response **+QFTPNLST: <dirname>,<local_name>** **OK**
Write Command When **<local_name>** is "COM:" **AT+QFTPNLST=<dirname>[,<local_name>]**	Response **CONNECT** <Output content data> **OK** If file names is listed successfully: **+QFTPNLST: 0,<transfer_size>** If it fails to list file names: **+QFTPNLST: <err>,<protocol_error>** Or **+CME ERROR: <err>**
Write Command When **<local_name>** is not "COM:" **AT+QFTPNLST=<dirname>,<local_name>**	Response **OK** **+QFTPNLST: 0,<transfer_size>** Or **+CME ERROR: <err>** If an error occurred while listing file names: **+QFTPNLST: <err>,<protocol_error>**
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**
Characteristics	This command takes effect immediately. The configuration will not be saved.

Parameter

<dirname>	String type. The folder name on FTP(S) server. The maximum size is 255 bytes. If it is ".", it will list the file names of current directory configured by **AT+QFTPCWD**.
<local_name>	String type. The local storage location of the data from FTP(S) server. The maximum size is 63 bytes. Default: COM. If it is "COM:", the data will be outputted

	from the COM port. If it is not "COM:", the data can be saved to UFS or SD card. Then the file can be read via **AT+QFREAD**. For more details, see ***document [4]***.
<transfer_size>	Integer type. The size of transferred data from FTP(S) server. Unit: byte.
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.
<protocol_error>	Integer type. For reference only. It indicates the original error code from FTP(S) server which is defined in FTP(S) protocol. For more details, see ***Chapter 6***. If it is 0, it is invalid.

Example

```
//Get the file name of current directory on FTP(S) server and the data is outputted via COM port.
AT+QFTPNLST="."
CONNECT
<Output content data>
OK

+QFTPNLST: 0,1000
//Get the file name of a specified directory on FTP(S) server and save it to UFS.
AT+QFTPNLST="TESTDIR","UFS:test2.txt"
OK

+QFTPNLST: 0,1000
AT+QFLST="UFS:*"
+QFLST: "UFS:test2.txt",1000

OK
```

2.13. AT+QFTPMLSD List Standardized File and Directory Information

This command Lists standardized file and directory information on FTP(S) server. If the **<local_name>** is "COM:", **CONNECT** should be outputted within **<timeout>** configured by **AT+QFTPCFG**. If the **<local_name>** is not "COM:", **OK** will be returned first. And then **+QFTPMLSD: 0,<transfer_size>** or **+QFTPMLSD: <err>,<protocol_error>** will be outputted after the content has been transferred completely.

If the module has entered data mode or the **<local_name>** is not "COM:", the **<timeout>** configured by **AT+QFTPCFG** indicates the maximum interval time between two packets of received/transferred data.

AT+QFTPMLSD List Standardized File and Directory Information	
Test Command **AT+QFTPMLSD=?**	Response **+QFTPMLSD: <dirname>,<local_name>**

	OK
Write Command When **<local_name>** is "COM:" **AT+QFTPMLSD=<dirname>[,<local_name>]**	Response **CONNECT** <Output content data> **OK** If the standardized file and directory information are listed successfully: **+QFTPMLSD: 0,<transfer_size>** If it fails to list the standardized file and directory information: **+QFTPMLSD: <err>,<protocol_error>** Or **+CME ERROR: <err>**
Write Command When **<local_name>** is not "COM:" **AT+QFTPMLSD=<dirname>,<local_name>**	Response **OK** If the standardized file and directory information are listed successfully: **+QFTPMLSD: 0,<transfer_size>** If it fails to list the standardized file and directory information: **+QFTPMLSD: <err>,<protocol_error>** Or **+CME ERROR: <err>**
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**
Characteristics	/

Parameter

<dirname>	String type. The folder name on FTP(S) server. The maximum size is 255 bytes. If it is ".", it will get standardized file and directory information configured by **AT+QFTPCWD**.
<local_name>	String type. The local storage location of the data from FTP(S) server. The maximum size is 63 bytes. Default: COM. If it is "COM:", the data will be outputted from the COM port. If it is not "COM:", the data can be saved to UFS or SD card. Then the file can be read via **AT+QFREAD**. For more details, see ***document [4]***.
<transfer_size>	Integer type. The size of transferred data from FTP(S) server. Unit: byte.
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.
<protocol_error>	Integer type. For reference only. It indicates the original error code from FTP(S)

	server which is defined in FTP(S) protocol. For more details, see ***Chapter 6***. If it is 0, it is invalid.

Example

```
//Get standardized file and directory information on FTP(S) server and the data is outputted via COM port.
AT+QFTPMLSD="."
CONNECT
<Output content data>
OK

+QFTPMLSD: 0,1000
//Get standardized file and directory information on FTP(S) server and save them to UFS.
AT+QFTPMLSD="TESTDIR","UFS:test2.txt"
OK

+QFTPMLSD: 0,1000
AT+QFLST="UFS:*"
+QFLST: "UFS:test2.txt",1000

OK
```

2.14. AT+QFTPMDTM Get the File Modification Time on FTP(S) Server

This command gets the time to modify the file on FTP(S) server. If **OK** is returned, **+QFTPMDTM: 0,<modify_time>** or **+QFTPMDTM: <err>,<protocol_error>** should be outputted within **<timeout>** configured by **AT+QFTPCFG**. Otherwise, the FTP(S) connection should be disconnected, and the network should be deactivated and reactivated.

AT+QFTPMDTM Get the File Modification Time on FTP(S) Server	
Test Command **AT+QFTPMDTM=?**	Response **+QFTPMDTM: <file_name>** **OK**
Write Command **AT+QFTPMDTM=<file_name>**	Response **OK** If the file modification time is gotten successfully : **+QFTPMDTM: 0,<modify_time>** If it fails to get the file modification time:

	+QFTPMDTM: <err>,<protocol_error> Or **+CME ERROR: <err>**
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**
Characteristics	/

Parameter

<file_name>	String type. The file name on FTP(S) server. The maximum size is 255 bytes.
<modify_time>	String type. The file modification time on FTP(S) server. The format is "YYYYMMDDHHMMSS" or "YYYYMMDDHHMMSS.NNN".
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.
<protocol_error>	Integer type. For reference only. It indicates the original error code from FTP(S) server which is defined in FTP(S) protocol. For more details, see ***Chapter 6***. If it is 0, it is invalid.

2.15. AT+QFTPRENAME Rename a File or Folder on FTP(S) Server

This command renames a file or folder on FTP(S) server. If **OK** is returned, **+QFTPRENAME: <err>,<protocol_error>** should be outputted within **<timeout>** configured by **AT+QFTPCFG**. Otherwise, the FTP(S) connection should be disconnected, and the network should be deactivated and reactivated.

AT+QFTPRENAME Rename a File or Folder on FTP(S) Server	
Test Command **AT+QFTPRENAME=?**	Response **+QFTPRENAME: <old_name>,<new_name>** **OK**
Write Command **AT+QFTPRENAME=<old_name>,<new_name>**	Response **OK** **+QFTPRENAME: <err>,<protocol_error>** Or **+CME ERROR: <err>**
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**
Characteristics	/

Parameter

<old_name>	String type. The old file name or folder name on FTP(S) server. The maximum size is 255 bytes.
<new_name>	String type. The new file name or folder name on FTP(S) server. The maximum size is 255 bytes.
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.
<protocol_error>	Integer type. For reference only. It indicates the original error code from FTP(S) server which is defined in FTP(S) protocol. For more details, see ***Chapter 6***. If it is 0, it is invalid.

2.16. AT+QFTPLEN Get the Length of Transferred Data

This command gets the length of transferred data on FTP(S) server.

AT+QFTPLEN Get the Length of Transferred Data	
Test Command **AT+QFTPLEN=?**	Response **OK**
Execution Command **AT+QFTPLEN**	Response **OK** **+QFTPLEN: 0,<transferlen>** Or **+CME ERROR: <err>**
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**
Characteristics	/

Parameter

<transferlen>	Integer type. The length of transferred data on FTP(S) server. When executing **AT+QFTPPUT**, **AT+QFTPGET**, **AT+QFTPNLST** or **AT+QFTPLIST** command, the length of transferred data can be queried by **AT+QFTPLEN**. Unit: byte.
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.

2.17. AT+QFTPSTAT Get the Status of FTP(S) Server

This command gets the status of FTP(S) server.

AT+QFTPSTAT Get the Status of FTP(S) Server	
Test Command **AT+QFTPSTAT=?**	Response **OK**
Execution Command **AT+QFTPSTAT**	Response **OK** **+QFTPSTAT: 0,<ftpstat>** Or **+CME ERROR: <err>**
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**
Characteristics	/

Parameter

<ftpstat>	Integer type. The current status of FTP(S) server 0 Opening an FTP(S) server 1 The FTP(S) server is opened and idle 2 Transferring data with FTP(S) server 3 Closing the FTP(S) server 4 The FTP(S) server is closed
<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.

2.18. AT+QFTPCLOSE Log out from FTP(S) Server

This command logs out from FTP(S) server. If **OK** is returned, **+QFTPCLOSE: <err>,<protocol_error>** should be outputted within **<timeout>** configured by **AT+QFTPCFG**. Otherwise, the network should be deactivated and reactivated.

AT+QFTPCLOSE Log out from FTP(S) Server	
Test Command **AT+QFTPCLOSE=?**	Response **OK**
Execution Command **AT+QFTPCLOSE**	Response **OK**

	+QFTPCLOSE: <err>,<protocol_error> Or **+CME ERROR: <err>**
Maximum Response Time	Determined by **<timeout>** configured in **AT+QFTPCFG**
Characteristics	This command takes effect immediately. The configuration will not be saved.

Parameter

<err>	0 means the operation is successful, other values mean errors. For more details, see ***Chapter 5***.
<protocol_error>	Integer type. For reference only. It indicates the original error code from FTP(S) server which is defined in FTP(S) protocol. For more details, see ***Chapter 6***. If it is 0, it is invalid.

3 Examples

3.1. Login to FTP Server

```
//Step 1: Configure and activate the PDP context.
AT+QICSGP=1,1,"UNINET","","",1          //Set PDP context as 1 and China Unicom APN as "UNINET".
OK
AT+QIACT=1                              //Activate PDP context 1.
OK                                      //Activated successfully.
AT+QIACT?                               //Query the status of PDP context.
+QIACT: 1,1,1,"10.7.157.1"

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

OK
//Step 2: Configure user account and transfer settings.
AT+QFTPCFG="account","test","test"      //Set user name and password.
OK
AT+QFTPCFG="filetype",1                 //Set file type as ASCII.
OK
AT+QFTPCFG="transmode",1                //Set transfer mode as passive mode.
OK
AT+QFTPCFG="rsptimeout",90              //Set the maximum response time as default 90.
OK
//Step 3: Login to FTP server.
AT+QFTPOPEN=" quectel.3322.org",21
OK

+QFTPOPEN: 0,0
```

3.2. Login to FTPS Server

```
//Step 1: Configure and activate the PDP context.
AT+QICSGP=1,1,"UNINET","","",1          //Set PDP context 1. APN is "UNINET" for China Unicom.
OK
AT+QIACT=1                              //Activate PDP context 1.
OK                                      //Activated successfully.
AT+QIACT?                               //Query the status of PDP context.
+QIACT: 1,1,1,"10.7.157.1"

OK
AT+QFTPCFG="contextid",1                //Set the PDP context ID as 1. The PDP context ID
                                        must be activated first.
OK
//Step 2: Configure user account and transfer settings.
AT+QFTPCFG="account","test","test"      //Set user name and password.
OK
AT+QFTPCFG="filetype",1                 //Set file type as ASCII.
OK
AT+QFTPCFG="transmode",1                //Set transfer mode as passive mode.
OK
AT+QFTPCFG="rsptimeout",90              //Set the maximum response time as default 90.
OK
//Step 3: Configure FTPS.
AT+QFTPCFG="ssltype",1                  //Set SSL type as 1, the module works as FTPS client.
OK
AT+QFTPCFG="sslctxid",1                 //Set SSL context as 1.
OK
AT+QSSLCFG="ciphersuite",1,0xffff       //Set SSL cipher suite type as 0xffff, which supports all
                                        cipher suite type.
OK
AT+QSSLCFG="seclevel",1,0               //Set SSL security level as 0, which means the SSL CA
                                        certificate is not needed.
OK
AT+QSSLCFG="sslversion",1,1             //Set SSL version as 1, which means TLS1.0.
OK
//Step 4: Login to FTPS server.
AT+QFTPOPEN="quectel.3322.org",990
OK

+QFTPOPEN: 0,0
```

3.3. Folder Operation

```
AT+QFTPCWD="/"                                  //Set current directory.
OK

+QFTPCWD: 0,0
AT+QFTPPWD                                      //Query current directory.
OK

+QFTPPWD: 0,/
AT+QFTPMKDIR="TEST"                             //Create a folder as TEST on FTP(S) server.
OK

+QFTPMKDIR: 0,0
AT+QFTPRENAME="TEST","TEST_NEW"                 //Rename the folder as TEST_NEW.
OK

+QFTPRENAME: 0,0
AT+QFTPRMDIR="TEST_NEW"                         //Delete the folder TEST_NEW.
OK

+QFTPRMDIR: 0,0
```

3.4. File Operation

```
AT+QFTPCWD="/"                                  //Set current directory.
OK

+QFTPCWD: 0,0
AT+QFTPPWD                                      //Query current directory.
OK

+QFTPPWD: 0,"/"
AT+QFTPSIZE="test_my1.txt"                      //Query the size of test_my1.txt on FTP(S) server.
OK

+QFTPSIZE:0, 1000
AT+QFTPRENAME="test_my1.txt","test_new.txt"     //Rename the file as test_new.txt.
OK

+QFTPRENAME: 0,0
```

```
AT+QFTPMDTM="test_new.txt"                  //Get the file modification time of test_new.txt on
                                              FTP(S) server.
OK

+QFTPMDTM: 0,"20140708110039"
AT+QFTPDEL="test_new.txt                    //Delete test_new.txt on FTP(S) server.
OK

+QFTPDEL: 0,0
```

3.5. List File Information or File Names

```
AT+QFTPCWD="/"                              //Set current directory.
OK

+QFTPCWD: 0,0
AT+QFTPLIST="."                             //List the content of current directory and the data is outputted
                                              via COM port.
CONNECT
<Output content data>
OK

+QFTPLIST: 0,1000
AT+QFTPLIST=".","UFS:list.txt"              //List the content of current directory and the data is outputted via
                                              UFS:list.txt.
OK

+QFTPLIST: 0,1000
AT+QFTPLIST="TEST_2","COM:"                 //List the content of TEST_2 and the data is outputted via COM
                                              port.
CONNECT
<Output content data>
OK

+QFTPLIST: 0,1000
AT+QFTPNLST="."                             //List file names of current directory and the data is outputted via
                                              COM port.
CONNECT
<Output content data>
OK

+QFTPNLST: 0,1000
```

```
AT+QFTPNLST=".","UFS:nlst.txt"      //List file names of current directory and the data is outputted via UFS:nlst.txt.
OK

+QFTPNLST: 0,1000
AT+QFTPNLST="TEST_2","COM:"         //List file names of TEST_2 and the data is outputted via COM port.
CONNECT
<Output content data>
OK

+QFTPNLST: 0,1000
AT+QFTPMLSD="."                     //List standardized file and directory information of current directory and the data is outputted via COM port.
CONNECT
<Output content data>
OK

+QFTPMLSD: 0,1000
AT+QFTPMLSD=".","UFS:nlst.txt"      //List standardized file and directory information of current directory and the data is outputted via UFS:nlst.txt.
OK

+QFTPMLSD: 0,1000
AT+QFTPMLSD="TEST_2","COM:"         //List standardized directory information of TEST_2 and the data is outputted via COM port.
CONNECT
<Output content data>
OK

+QFTPMLSD: 0,1000
```

3.6. Upload a File to FTP(S) Server

```
AT+QFTPCWD="/"
OK

+QFTPCWD: 0,0
AT+QFTPSTAT
+QFTPSTAT: 0,1

OK
```

```
//Upload a file via COM port.
AT+QFTPPUT="test_my1.txt","COM:",0                    //All data will be saved as test_my1.txt on FTP(S) server.
CONNECT
<Input file data>
<+++>
OK

+QFTPPUT: 0,1000
AT+QFTPLEN
OK

+QFTPLEN: 0,1000
AT+QFTPSIZE="test_my1.txt"
OK

+QFTPSIZE: 0,1000
//Upload a file via COM port and the start position is 1000.
AT+QFTPPUT="test_my1.txt","COM:",1000                 //All data will be saved as test_my1.txt on FTP(S) server.
CONNECT
<Input file data>
<+++>
OK

+QFTPPUT: 0,500
AT+QFTPSIZE="test_my1.txt"
OK

+QFTPSIZE: 0,1500
//Solution 1: Upload a file via COM port to FTP(S) server twice in 1024 bytes each time.
AT+QFTPPUT="test_my1.txt","COM:",0,1024,0              //It is not the last 1024 bytes of test_my1.txt.
CONNECT
<Input file data>
OK                                                    //Data length reaches 1024 bytes.

+QFTPPUT: 0,1024
AT+QFTPPUT="test_my1.txt","COM:",1024,1024,1           //It is the last packet 1024 bytes data of test_my1.txt.
CONNECT
<Input file data>
OK                                                    //Data length reaches 1024 bytes.

+QFTPPUT: 0,1024
```

```
//Solution 2: Upload a file from UFS to FTP(S) server.
AT+QFUPL="UFS:test_ufs.txt",1000,300,1          //Upload a file to UFS, the file will be saved as test_ufs.txt and the maximum file size is 1000 bytes. 300 indicates timeout and 1 indicates ACK mode. For more details, see document [4].

CONNECT
<Input 1000 bytes data>
+QFUPL: 1000,707

OK
AT+QFLST="UFS:*"
+QFLST: "UFS:test_ufs.txt",1000

OK
AT+QFTPPUT="test_my1.txt","UFS:test_ufs.txt",0  //Upload UFS:test_ufs.txt to FTP(S) server and save as test_my1.txt on FTP(S) server.

OK

+QFTPPUT: 0,1000
AT+QFDEL="UFS:test_ufs.txt"                     //Delete local UFS file.
OK
//Solution 3: Upload a file from SD to FTP(S) server.
AT+QFUPL="SD:test_sd.txt",1000,300,1            //Upload a file to SD, the file will be saved as test_sd.txt and the maximum file size is 1000 bytes. 300 indicates timeout and 1 indicates ACK mode. For more details, see document [4].

CONNECT
<Input 1000 bytes data>
+QFUPL: 1000,707

OK
AT+QFLST=SD:*"
+QFLST: "SD:test_sd.txt",1000

OK
AT+QFTPPUT="test_my1.txt","SD:test_sd.txt",0    //Upload SD:test_sd.txt to FTP(S) server and save as test_my1.txt on FTP(S) server.

OK

+QFTPPUT: 0,1000
AT+QFTPLEN
OK
```

```
+QFTPLEN: 0,1000
AT+QFTPSIZE="test_my1.txt"
OK

+QFTPSIZE: 0,1000
AT+QFDEL="SD:test_sd.txt"                    //Delete local SD file.
OK
```

3.7. Download a File from FTP(S) Server

```
AT+QFTPCWD="/"
OK

+QFTPCWD: 0,0
//Solution 1: Output downloaded data directly via COM port.
//Download a file from FTP(S) server and the data is outputted via COM port.
AT+QFTPGET="test_my.txt","COM:"
CONNECT
<Output file data>
OK

+QFTPGET: 0,1000
//Download a file and the data is outputted via COM port twice in 500 bytes each time.
AT+QFTPGET="test.txt","COM:",0,500           //The size of test.txt is 1000 bytes, and the first
                                               download size is 500 bytes.
CONNECT
<Output file data>
OK

+QFTPGET: 0,500
AT+QFTPGET="test.txt","COM:",500,500         //Download the left 500 bytes.
CONNECT
<Output file data>
OK

+QFTPGET: 0,500
//Solution 2: Save downloaded data to UFS file.
//Download a file from FTP(S) server and save it to UFS
AT+QFTPGET="test_my1.txt","UFS:test.txt"     //Download file and save it to UFS as test.txt.
OK
```

```
+QFTPGET: 0,1000
AT+QFLST="UFS:*"
+QFLST: UFS:test.txt,1000

OK
//Download a file from FTP(S) server and save it to UFS, the start position is 450.
AT+QFTPGET="test_my1.txt","UFS:test1.txt",450      //Download file and save it to UFS as test1.txt.
OK

+QFTPGET: 0,550
AT+QFLST="UFS:*"                                   //Query the downloaded file and file size in UFS.
+QFLST: UFS:test.txt,1000
+QFLST: UFS:test1.txt,550

OK
//Solution 3: Save downloaded data to SD file
//Download a file from FTP(S) server and save it to SD
AT+QFTPGET="test_my1.txt","SD:test.txt"            //Download file and save it to SD card as test.txt.
OK

+QFTPGET: 0,1000
AT+QFLST="SD:*"
+QFLST: SD:test.txt,1000

OK
//Download a file from FTP(S) server and save it to SD, the start position is 450.
AT+QFTPGET="test_my1.txt","SD:test1.txt",450      //Download file and save it to SD card as test.txt.
OK

+QFTPGET: 0,550
AT+QFTPLEN
OK

+QFTPLEN: 0,550
AT+QFLST="SD:*"                                    //Query the downloaded file and file size in SD card.
+QFLST: SD:test.txt,1000
+QFLST: SD:test1.txt,550

OK
```

3.8. Log out from FTP(S) Server

```
AT+QFTPCLOSE                    //Log out from FTP(S) server.
OK

+QFTPCLOSE: 0,0
AT+QIDEACT=1                    //Deactivate the PDP context which was activated for FTP(S).
OK
```

4 Error Handling

4.1. Executing FTP(S) AT Command Fails

When executing FTP(S) AT commands, if **ERROR** is received from the module, please check whether the (U)SIM card is inserted and whether it is **+CPIN: READY** returned when executing **AT+CPIN?**.

4.2. PDP Activation Fails

If it fails 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 the 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** 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 via **AT+CGACT**.
5. The module supports a maximum of 5 PDP contexts activated under the VoLTE function, and it supports a maximum of 7 PDP contexts activated under the non-VoLTE function. The number of activated PDP contexts depends on the SIM card.

If all above configurations are correct, but activating the PDP context by **AT+QIACT** 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+QFTPOPEN**, if **+QFTPOPEN: 604,0** is returned, please check the following aspects:

1. Make sure the domain name of FTP(S) server is valid.
2. Query the status of the PDP context by **AT+QIACT?** to make sure the specified PDP context has been activated successfully.

4.4. Error Response of FTP(S) Server

If the **<protocol_error>** in **+QFTPXX: <err>,<protocol_error>** is not 0, it indicates the error code replied from FTP(S) server.

You can check the issue depending on the protocol error code. For example, if **<protocol_error>** is 530 (not logged in), it indicates **<username>** or **<password>** may be wrong. If **<protocol_error>** is 550 (requested action not taken: file unavailable), it means the file or directory may not exist. For more details, see *RFC959*.

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 2: Summary of Error Codes

<err>	Description of Error Codes
0	Operation successful
601	Unknown error
602	FTP(S) server blocked
603	FTP(S) server busy
604	DNS parse failed
605	Network error
606	Control connection closed.
607	Data connection closed
608	Socket closed by peer
609	Timeout error
610	Invalid parameter
611	Failed to open file
612	File position invalid
613	File error
614	Service not available, closing control connection
615	Open data connection failed
616	Connection closed; transfer aborted
617	Requested file action not taken

618	Requested action aborted: local error in processing
619	Requested action not taken: insufficient system storage
620	Syntax error, command unrecognized
621	Syntax error in parameters or arguments
622	Command not implemented
623	Bad sequence of commands
624	Command parameter not implemented
625	Not logged in
626	Need account for storing files
627	Requested action not taken
628	Requested action aborted: page type unknown
629	Requested file action aborted
631	SSL authentication failed
632	Source IP address for transmission cannot use
633	Send data failed
634	Receive data failed

6 Summary of FTP(S) Protocol Error Codes

The protocol error code **<protocol_error>** indicates an error replied from FTP(S) server. For more details, see *RFC959*. The details about **<protocol_error>** are described in the following table.

Table 3: Summary of FTP(S) Protocol Error Codes

<protocol_error>	Meaning
421	Service not available, closing control connection
425	Open data connection failed
426	Connection closed; transfer aborted
450	Requested file action not taken
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
530	Not logged in
532	Need account for storing files
550	Requested action not taken: file unavailable
551	Requested action aborted: page type unknown
552	Requested file action aborted: exceeded storage allocation

553	Requested action not taken: file name not allowed

7 Appendix References

Table 4: Related Documents

Document Name
[1] Quectel_EC200U&EG915U_Series_TCP(IP)_Application_Note
[2] Quectel_EC200U&EG915U_Series_AT_Commands_Manual
[3] Quectel_EC200U&EG915U_Series_SSL_Application_Note
[4] Quectel_EC200U&EG915U_Series_FILE_Application_Note

Table 5: Terms and Abbreviations

Abbreviation	Description
ACK	Acknowledgement
APN	Access Point Name
ASCII	American Standard Code for Information Interchange
DNS	Domain Name Server
ID	Identifier
IP	Internet Protocol
DTR	Data Terminal Ready
FTP	File Transfer Protocol
FTPS	FTP over SSL/FTP Secure
PDP	Packet Data Protocol
PPP	Point-to-Point Protocol

PS	Packet Switching
QoS	Quality of Service
SD	Secure Digital
SSL	Secure Sockets Layer
TLS	Transport Layer Security
UFS	Universal Flash Storage
URC	Unsolicited Result Code
(U)SIM	(Universal) Subscriber Identity Module
VoLTE	Voice over Long-Term Evolution