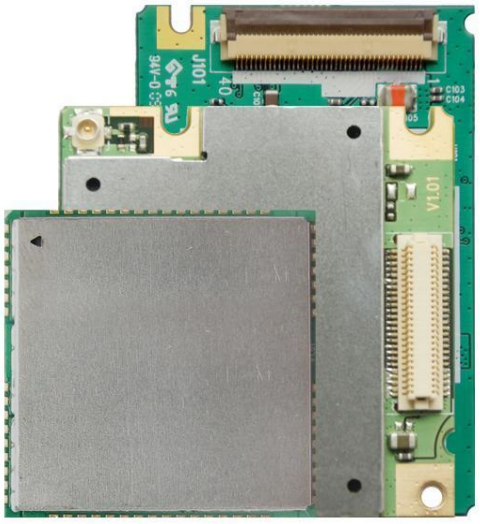
Quectel Cellular Engine

GSM FTP AT Commands

GSM_FTP_ATC_V1.1



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0. Revision history

Revision	Date	Author	Description of change
1.00	2009-7-27	Colin HU	Initial
1.01	2010-4-12	Joanna LI	Add example for resuming file
1.1	2010-7-1	Colin HU	Add the notice of hardware flow control when transferring file.
	2010-8-3	Colin HU	Add the description about how to upload a file in UFS or SD or RAM and download a file to UFS or SD or RAM.

1. Introduction

Quectel Module provides an internal TCP/IP stack that is driven by AT commands and enables the host application to easily access the Internet service. It includes TCP service, UDP service, HTTP service and FTP service, etc. This document is a reference guide to all the AT commands and responses defined for FTP Service.

1.1. Reference

Table 1: Reference

SN	Document name	Remark
[1]	Mxx_ATC	The introduction of AT commands for Quectel Module
[2]	GSM_TCPIP_AN	To introduce how to use the internal TCP/IP stack
[3]	GSM_File_ATC	To introduce the AT command for the file system

1.2. Terms and abbreviations

Table 2: Terms and abbreviations

Abbreviation	Description
APN	Access Point Network
CSD	Circuit Switched Data
FTP	File Transfer Protocol
GPRS	General Packet Radio Service
HTTP	Hypertext Transfer Protocol Overview
TA	Terminal Adapter, i.e. the module
TCP	Transmission Control Protocol
TE	Terminal Equipment, i.e. the device who control the module via UART
UART	Universal Asynchronous Receiver/Transmitter
UDP	User Datagram Protocol
UFS	User File Storage. Please refer to [3]

2. AT Commands for FTP Service

2.1. Overview of AT Commands for FTP Service

Command	Description
AT+QFTPOPEN	OPEN AN FTP SERVICE TO THE GIVEN FTP SERVER
AT+QFTPCLOSE	CLOSE THE FTP SERVICE
AT+QFTPPUT	UPLOAD A FILE TO THE FTP SERVER
AT+QFTPGET	DOWNLOAD A FILE FROM THE FTP SERVER
AT+QFTPPATH	SET THE PATH IN THE FTP SERVER TO UPLOAD OR DOWNLOAD FILE
AT+QFTPUSER	SET THE USER NAME OF THE ACCOUNT TO OPEN FTP SERVICE
AT+QFTPPASS	SET THE PASSWORD OF THE ACCOUNT TO OPEN FTP SERVICE
AT+QFTPCFG	SET SOME CONFIGUABLE PARAMETERS FOR THE FTP SERVICE
AT+QFTPSTAT	QUERY STATUS OF FTP SERVICE
AT+QFTPLEN	QUERY THE REAL SIZE TRANSFERRED IN THE LATEST TRANSFER

2.2. Detailed Description of AT Commands for FTP Service

2.2.1. AT+QFTPOPEN Open an FTP service to the given FTP server

AT+QFTPOPEN	Open an FTP service to the given FTP server
Test Command **AT+QFTPOPEN=?**	Response **+QFTPOPEN : "HOST NAME",(1-65535)** **OK** Parameters See Write Command
Read Command **AT+QFTPOPEN?**	Response **+QFTPOPEN :"<hostName>",(1-65535)** **OK** Parameters See Write Command
Write Command **AT+QFTPOPEN="<host Name>",<port>**	Response If format is right, response **OK**

	Otherwise response **ERROR** Next, if connect successfully, response **+QFTPOPEN:0** Otherwise, response **+QFTPOPEN:<err>** Parameters **<hostName>** The address of the FTP server, it could be an IP address or a domain name. The maximum size of the parameter is 100. **<port>** The port of the FTP server. The range of the parameter is 1-65535. **<err>** A negative numeric to indicate the type of error, please refer to the chapter 3.
Reference	**Note:** 1. It is recommended to execute the commands **AT+QFTPUSER** and **AT+QFTPPASS** to set the user name and password before open FTP service. 2. If FTP state is IDLE or CLOSED (Please refer to 2.2.9), the fields of host name and port in the response of the read command are empty.

2.2.2. AT+QFTPCLOSE Close the FTP service

AT+QFTPCLOSE Close the FTP service	
Test Command **AT+QFTPCLOSE=?**	Response **OK** Parameters See Write Command
Execution Command **AT+QFTPCLOSE**	Response **OK** Next, if the FTP service is closed successfully, response **+QFTPCLOSE: 0** Otherwise, response **+QFTPCLOSE:<err>** Parameters **<err>** A negative numeric to indicate the type of error, please refer to the chapter 3.
Reference	**Note:**

2.2.3. AT+QFTPPUT Upload a file to the FTP server

AT+QFTPPUT	Upload a file to the FTP server
Test Command **AT+QFTPPUT=?**	Response **+QFTPPUT: "FILE NAME",<fileSz>,(1-65535)** **OK** Parameters See Write Command
Write Command **AT+QFTPPUT="<fileName>",<fileSz>[,<time>]**	Response If format is right, response **OK** Otherwise, response **ERROR** Next, if the content of the file to put was set to input via UART and the UART successfully enters data mode, response **CONNECT** Finally, if upload the file successfully, response **+QFTPPUT:<upSize>** Otherwise, response **+QFTPPUT:<err>** Parameters **<fileName>** The name of the file to upload. The maximum size of the parameter is 50. **<fileSz>** The size of the file to upload. For the file UFS, RAM and SD, if <**fileSz**> was set as 0, it will put the file according to the real size of the file to put. **<time>** The maximum time allowed to get file data. The default value is 900. The unit is second. The larger **<fileSz>** is, **<time>** should be set longer. **<upSize>** The actual size to upload successfully, theoretically, it should equals **<fileSz>**. **<err>** A negative numeric to indicate the type of error, please refer to the chapter 3.
Reference	**Note:** ● If the length of the input data from UART reaches **<fileSz>**, or the time to input data reaches **<time>**, the FTP service will stop receiving data from UART.

	● After **CONNECT** appears, UART enter in data mode. It is supported to escape data mode by "+++". Please refer to [2] for the details. ● For reliable transmission when uploading file through UART, it's strongly recommended to enable hardware flow control in both TA side and TE side. The command "**AT+IFC=2, 2**" is used to enable hardware flow control in TA side (Please refer to [1] for the details).

2.2.4. AT+QFTPGET Download a file from the FTP server

AT+QFTPGET	**Download a file from the FTP server**
Test Command **AT+QFTPGET=?**	Response **+QFTPGET: "FILE NAME"** **OK** Parameters See Write Command
Write Command **AT+QFTPGET="<fileName>"**	Response If format is right response **OK** Otherwise response **ERROR** Next, if the content of the file to get was set to output via UART and the UART successfully enters data mode, response **CONNECT** Finally, if download the file successfully, response **+QFTPGET:<dwSize>** Otherwise, response **+QFTPGET:<err>** Parameters **<fileName>** The name of the file to download. The maximum size of the parameter is 50. **<dwSize>** The size of the download file. **<err>** A negative numeric to indicate the type of error, please refer to the chapter 3.
Reference	**Note:** ● After **CONNECT** appears, UART enter in data mode. It is supported to escape data mode by "+++". Please refer to [2] for the details. ● For reliable transmission when downloading file through UART, it's strongly recommended to enable hardware flow control in both TA side and TE side. The command "**AT+IFC=2, 2**" is used to enable

	hardware flow control in TA side (Please refer to [1] for the details).

2.2.5. AT+QFTPPATH Set the path in the FTP server to upload or download file

AT+QFTPPATH	**Set the path in the FTP server to upload or download file**
Test Command **AT+QFTPPATH=?**	Response **+QFTPPATH: "PATH NAME"** **OK** Parameters See Write Command
Read Command **AT+QFTPPATH?**	Response **OK** **+QFTPPATH:"<Path Name>"** Parameters See Write Command
Write Command **AT+QFTPPATH="<pathName>"**	Response If format is right, response **OK** Otherwise, response **ERROR** Next, if the path is set successfully, response **+QFTPPATH: 0** Otherwise, response **+QFTPPATH:<err>** Parameters **<pathName>** The name of the path to set. The maximum size of the parameter is 100. **<err>** A negative numeric to indicate the type of error, please refer to the chapter 3.
Reference	**Note:**

2.2.6. AT+QFTPUSER Set the user name of the account to open FTP service

AT+QFTPUSER	**Set the user name of the account to open FTP service**

Test Command **AT+QFTPUSER=?**	Response **+QFTPUSER: "USER NAME"** **OK** Parameters See Write Command
Read Command **AT+QFTPUSER?**	Response **+QFTPUSER:"<userName>"** **OK** Parameters See Write Command
Write Command **AT+QFTPUSER="<userName>"**	Response If format is right and the FTP service is idle, response **OK** Otherwise, response **ERROR** Parameters **<userName>** The user name of the account. If it is "", the module will use anonymous account to open FTP service. The maximum size of the parameter is 30.
Reference	**Note:**

2.2.7. AT+QFTPPASS Set the password of the account to open FTP service

AT+QFTPPASS	**Set the password of the account to open FTP service**
Test Command **AT+QFTPPASS=?**	Response **+QFTPPASS: "PASSWORD"** **OK** Parameters See Write Command
Read Command **AT+QFTPPASS?**	Response **+QFTPPASS:"<password>"** **OK** Parameters See Write Command
Write Command **AT+QFTPPASS="<password>"**	Response If format is right and the FTP service is idle, response **OK**

	Otherwise, response **ERROR** Parameters **<password>** The password of the account. The maximum size of the parameter is 30.
Reference	**Note:**

2.2.8. AT+QFTPCFG Set some configurable parameters for the FTP service

AT+QFTPCFG	**Set some configurable parameters for the FTP service**
Test Command **AT+QFTPCFG=?**	Response **+QFTPCFG: (1-4)** **OK** Parameters See Write Command
Write Command **AT+QFTPCFG=<type>[,<value>]**	Response If format is right, response **OK** Otherwise, response **ERROR** Next, if the configurable parameter is set successfully, response **+QFTPCFG: 0** Else if **<value>** is default and **<type>** is legal, this command is used to query the value of the corresponding parameter, and response **+QFTPCFG:<value>** Otherwise, response **+QFTPCFG:<err>** Parameters **<type>** The type of the configurable parameter to set. 1 The mode of data connection 2 The transfer type 3 The resuming point to resume file transfer 4 The local position of the file to transfer **<value>** The value of the parameter to set. The following is the details about **<value>**. If (**<type>** == 1) 0 active mode

		1 passive mode
		If (**<type>** == 2)
		0 set the transfer type as binary
		1 set the transfer type as ASCII
		If (**<type>** == 3), it is the resuming point to resume file transfer. Default is 0.
		If (**<type>** == 4), it is a string to indicate the local position of the file to transfer. The following are the detailed description for the parameter.
		"**/COM/**" The file data will be input from UART or output to UART. It's default.
		"**/UFS/**" The file to put is a file saved in UFS and the received file will be saved in UFS. It is also supported to specify the file name here. For example, "/UFS/filename.txt". Then, no matter what the parameter <fileName> is in the command **AT+QFTPPUT,** it will read the file "filename.txt" in UFS to put, and the name of the file in the FTP server is defined by <fileName>. Likewise, the command **AT+QFTPGET** gets the file whose name is defined by <fileName> in the FTP server and saves it in UFS with name "filename.txt".
		"**/SD/**" The file to transfer is saved in the directory "Picture" in SD card. It's also supported to specify the file name after the path as similar as in UFS except the root directory is the directory "Picture" in SD card. This is only supported by M33.
		"**/RAM/**" The file to transfer is saved in RAM. It's also supported to specify the file name after the path as same as in UFS. For the command **AT+QFTPGET**, no matter what is the size of the file to get, it will allocate 102400 Bytes' space for the file. This is only supported by M33.

	<err>	A negative numeric to indicate the type of error, please refer to the chapter 3.
Reference	**Note:** The resuming point will be reset as 0 after file transfer is finished.	

2.2.9. AT+QFTPSTAT Query status of FTP service

AT+QFTPSTAT	**Query status of FTP service**
Test Command **AT+QFTPSTAT =?**	Response **OK**

Execution Command **AT+QFTPSTAT**	Response **+QFTPSTAT: <state>** **OK** Parameters		
	<state>	A string indicate the current status of FTP service	
		IDLE	No FTP service.
		OPENING	Opening an FTP service.
		OPENED	The FTP service is opened and idle.
		WORKING	Sending FTP commands to the FTP server and receiving response from the FTP server to start data transfer.
		TRANSFER	Transferring data between the module and the FTP server.
		CLOSING	Closing the FTP service.
		CLOSED	The FTP service is closed.
Reference	**Note:**		

2.2.10. AT+QFTPLEN Query the real size transferred in the latest transfer

AT+QFTPLEN	**Query the real size transferred in the latest transfer**	
Test Command **AT+QFTPLEN=?**	Response **OK**	
Execution Command **AT+QFTPLEN**	Response **+QFTPLEN: <len>** **OK** Parameters	
	<len>	A numeric to indicate the real size that has been transferred in the latest transfer operation (**AT+QFTPPUT** or **AT+QFTPGET**).
Reference	**Note:**	

3. Summary of Error Codes

When no command is executed and some error happens, The FTP service will report the URC "**+QFTPERROR :<err>**". The error code **<err>** indicates an error related to mobile equipment or network. The detail about **<err>** is described in the following table.

<err>	Meaning
-1	Unknown error
-3	The FTP service is busy. Such as, opening FTP service, controlled by another virtual UART, etc.
-4	Failed to get IP address according to domain name
-5	Network error. Such as, failed to activate GPRS/CSD context, failed to establish the TCP connection with the FTP server or failed to send FTP command to the FTP server, etc.
-6	The FTP session is closed by the FTP server
-7	The data connection of the FTP service is closed by the FTP server
-8	GPRS/CSD context is deactivated
-9	Timeout
-10	The input parameter is illegal
-11	The file is not found in the local position, UFS or SD or RAM
-12	Failed to get the file in the local position, UFS or SD or RAM.
-421	The FTP server can't support service
-425	Failed to open data connection
-426	The connection is closed and stop transferring
-450	The request for the file isn't operated
-452	The FTP server has not enough memory
-500	The format of the FTP command is wrong
-501	The parameter of the FTP command is wrong
-502	The FTP command isn't operated by the FTP server
-530	Not login the FTP server
-532	Need the information of account
-550	The request is not operated
-551	The request is stopped
-552	The request of a file is stopped
-553	File name is illegal

4. Examples

4.1. Open an FTP service

AT+QIFGCNT=0 //choose the context 0 to activate GPRS/CSD context for the FTP service, please refer to [1] and [2]

OK

AT+QICSGP=1,"CMNET" //choose GPRS mode and set the APN as "CMNET"

OK

AT+QFTPUSER="quectel" //set the user name as "quectel"

OK

AT+QFTPPASS="123456" //set the password as "123456"

OK

AT+QFTPOPEN="quectel.3322.org", 21 //visit the FTP server "quectel.3322.org:21"

OK

…… //wait for a moment

+QFTPOPEN:0 //successfully open the FTP service.

Note:

Actually, the FTP server "quectel.3322.org:21" doesn't exist. It is just an example. Besides, it is strongly recommended to execute all the former commands only when SIM PIN is unlocked.

4.2. Upload a file to FTP server

After the FTP service is opened, it is OK to upload a file to the FTP server and download a file from the FTP server. The following are examples to upload file.

4.2.1. Upload a file through UART

AT+QFTPPATH="/" //set the path to upload file as "/"

OK

+QFTPPATH:0 //successfully set the path

AT+QFTPPUT="sscom.ini", 1587,200 //upload the file "sscom.ini" whose size is 1587, and the maximum time to input file data is 200 seconds

OK

CONNECT //successfully open data connection to upload file
…… //input the data of the file "sscom.ini"
+QFTPPUT: 1587 //successfully upload the file "sscom.ini" to the FTP server. The size of the data successfully uploaded is 1587.

4.2.2. Upload a file in UFS

AT+QFTPCFG=4,"/UFS/" //set the local position as UFS.
OK

+QFTPCFG: 0 //successfully set the local position.

AT+QFTPPATH="/" //set the server path to upload file as "/"
OK

+QFTPPATH: 0 //successfully set the path

AT+QFTPPUT="sscom.ini", 1587,200 //upload the file "**sscom.ini**" in UFS, and the size expected to put is 1587. If the real size of the file "**sscom.ini**" is less than 1587, it will upload file with the real size. The maximum time to read file data is 200 seconds

OK

+QFTPPUT: 1587 //successfully upload the file "sscom.ini" to the FTP server. The size of the data successfully uploaded is **1587**.

Note:

1. It is supported to upload a file in the directory "Picture" of SD card with the similar method as the former example in M33. The only difference is to replace "**AT+QFTPCFG=4,"/UFS/"**" with "**AT+QFTPCFG=4,"/SD/"**".
2. It is supported to upload a file in the RAM with the similar method as the former example in M33. The only difference is to replace "**AT+QFTPCFG=4,"/UFS/"**" with "**AT+QFTPCFG=4,"/RAM/"**".

4.2.3. Upload a specified file in UFS

AT+QFTPCFG=4,"/UFS/test.txt" //set "**test.txt**" in UFS as the local file to put or get.
OK

+QFTPCFG:0 //successfully set the local file.

AT+QFTPPATH="/" //set the server path to upload file as "/"
OK

+QFTPPATH: 0 //successfully set the path

AT+QFTPPUT="sscom.ini", 1587,200 //upload the file "**test.txt**" in UFS and modify its name as "**sscom.ini**" in the FTP server, and the size expected to put is **1587**. If the real size of the file "**sscom.ini**" is less than 1587, it will upload file with the real size. The maximum time to read file data is **200** seconds

OK

+QFTPPUT: 1587 //successfully upload the file "sscom.ini" to the FTP server. The size of the data successfully uploaded is **1587**.

Note:

1. It is supported to upload a specified file in the directory "Picture" of SD card with the similar method as the former example in M33. The only difference is to replace "**AT+QFTPCFG=4,"/UFS/test.txt"**" with "**AT+QFTPCFG=4,"/SD/test.txt"**". Of course, "**test.txt**" must be a file in the directory "Picture" in SD card.
2. It is supported to upload a specified file in the RAM with the similar method as the former example in M33. The only difference is to replace "**AT+QFTPCFG=4,"/UFS/test.txt"**" with "**AT+QFTPCFG=4,"/RAM/test.txt"**". Of course, "**test.txt**" must be a file in the RAM.

4.3. Download a file from FTP server

The following are examples to download file.

4.3.1. Download a file through UART

AT+QFTPPATH="/" //set the path to download file as "/"
OK

+QFTPPATH:0 //successfully set the path

AT+QFTPGET="sscom.ini" //download the file "**sscom.ini**" from the FTP server.
OK

CONNECT	//successfully open data connection to download file
……	//the data of the file "sscom.ini" outputs from UART
+QFTPGET:1587	//successfully download the file "sscom.ini" from the FTP server. And the size of the data successfully downloaded is **1587**. Of course, this sentence is possible the content of the file "sscom.ini". So, it is recommended to execute the command AT later to confirm whether the file has been downloaded over.
AT	// input **AT** from UART.
OK	//there is an **OK** response for AT, which means the download operation is finished.

4.3.2. Download a file into UFS

AT+QFTPCFG=4,"/UFS/"	//set the local position as UFS.
OK	
+QFTPCFG:0	//successfully set the local position.
AT+QFTPPATH="/"	//set the path to download file as "/"
OK	
+QFTPPATH:0	//successfully set the path
AT+QFTPGET="sscom.ini"	//download the file **"sscom.ini"** from the FTP server and save it in UFS with name "sscom.ini".
OK	
+QFTPGET:1587	//successfully download the file "sscom.ini" from the FTP server. And the size of the data successfully downloaded is **1587**.

Note:

1. It is supported to download a file into the directory “Picture” of SD card with the similar method as the former example in M33. The only difference is to replace "**AT+QFTPCFG=4,"/UFS/"**" with "**AT+QFTPCFG=4,"/SD/"**".
2. It is supported to download a file into the RAM with the similar method as the former example in M33. The only difference is to replace "**AT+QFTPCFG=4,"/UFS/"**" with "**AT+QFTPCFG=4,"/RAM/"**".

4.3.3. Download a file into a specified file in UFS

AT+QFTPCFG=4,"/UFS/dwl.txt"	//set the local position as UFS and the file to save the data in the file "**dwl.txt**".

OK

+QFTPCFG:0 //successfully set the local position.

AT+QFTPPATH="/" //set the path to download file as "/"
OK

+QFTPPATH:0 //successfully set the path

AT+QFTPGET="sscom.ini" //download the file **"sscom.ini"** from the FTP server and save it in UFS with name "dwl.txt".

OK

+QFTPGET:1587 //successfully download the file "sscom.ini" from the FTP server. And the size of the data successfully downloaded is **1587**.

Note:

1. It is supported to download a file and save it into a specified file in the directory "Picture" of SD card with the similar method as the former example in M33. The only difference is to replace "**AT+QFTPCFG=4,"/UFS/dwl.txt"**" with "**AT+QFTPCFG=4,"/SD/dwl.txt"**".
2. It is supported to download a file and save it into a specified file in the RAM with the similar method as the former example in M33. The only difference is to replace "**AT+QFTPCFG=4,"/UFS/dwl.txt"**" with "**AT+QFTPCFG=4,"/RAM/dwl.txt"**".

4.4. Resume file at the resuming point

While uploading or downloading file, the process may be interrupted because of disconnection. At this time, it is waste to transfer the data that has been transferred. Quectel's Module supports to transfer file at the resuming point if the server supports this function so that it is unnecessary to retransfer the data that has been transferred. And this function makes it possible to split a huge file into several small parts and then upload the file part by part. It is necessary to execute the command "**AT+QFTPCFG=3,<resuming point>**" before putting or getting remaining data. Please refer to the following examples.

4.4.1. Upload a file to FTP server from the resuming point

AT+QFTPPUT="sscom.ini",1587,200 //upload the file **"sscom.ini".** The total size is **3587**, and here just upload 1587 bytes for the first time. The remaining data of 2000 bytes can be uploaded later.

OK

CONNECT //successfully open data connection to upload file

…… //input the data of the file "sscom.ini"

+QFTPPUT:1587 //successfully upload 1587 bytes of the file "sscom.ini" to the FTP server.

AT+QFTPCFG=3,1587 //Set the resuming point.

OK

+QFTPCFG:0

AT+QFTPPUT="sscom.ini",2000,200 //upload the remaining 2000 bytes of the file "sscom.ini" to the server.

OK

CONNECT

…… //input the rest data of the file "sscom.ini" from the position 1587

+QFTPPUT:2000 //successfully upload the rest 2000 bytes

Note:

If the file to put was saved in UFS or SD or RAM, it will put the file from the resuming point. For example: the size of the file to put is 3587 and the resuming point was set as 1587, then it will upload the data from 1587 to 3586 (including it) in the file to put. If the size of the file is less than 3587, it will upload the data from 1587 to the end of the file.

4.4.2. Download a file from FTP server from the resuming point

Similar as uploading, it is supported to download file from the resuming point. For example, if file "sscom.ini" has been downloaded 1587 bytes, while the total size is 3587 bytes. It is supported to download the rest data from the position 1587.

AT+QFTPCFG=3,1587 //Set the resuming point.

OK

+QFTPCFG:0

AT+QFTPGET="sscom.ini" //download the rest data of "sscom.ini" from the FTP server.

OK

CONNECT

…… //the data of the file "sscom.ini" started from the position 1587 outputs from UART

+QFTPGET:2000 //successfully download the rest file of 2000 bytes from the FTP server.

Note:

If the downloaded file was expected to save in UFS or SD or RAM, it will put the received data in the file to save from the resuming point. For example: the resuming point was set as 1587 and the original size to save the received data is not less than 1587, then the received data will be put into

the file to save from 1587. If the size of the file is less than 1587, it will return error "+QFTPGET:-12".

4.5. Close the FTP service

AT+QFTPCLOSE //close the FTP service
OK

+QFTPCLOSE:0 //successfully close the FTP service.

AT+QIDEACT //deactivate GPRS/CSD context**.** Please refer to [1].
DEACT OK

Generally, if the FTP service is not used for a time of period, the FTP server will indicate the user that the FTP service can't be used. The module will report "**+QFTPERROR:-421**" for this information. After a moment, the FTP server will close the control connection of the FTP service. And the module will report "**+QFTPERROR:-6**" for this information. It is recommended to execute the command "**AT+QFTPCLOSE**" to close the FTP service after receiving these two report messages from UART.

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