



# A76XX Series\_FTP(S) \_Application Note

LTE Module

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# About Document

## Version History

Revision	Date	Chapter	Description
V1.00	2020.06.19		New version
V1.01	2021.07.02	All	Add support on A7678 Series
V1.02	2021.11.08	Scope	Scope description is updated

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## Scope

Based on module AT command manual, this document will introduce FTP(S) application process. Developers could understand and develop application quickly and efficiently based on this document. This document applies to A1803S Series, A1603 Series, A1601 Series and A1802 Series.

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# Contents

<b>About Document.....</b>	<b>2</b>
Version History.....	2
Scope.....	3
<b>Contents.....</b>	<b>4</b>
<b>1 Introduction.....</b>	<b>5</b>
1.1 Purpose of the document.....	5
1.2 Related documents.....	5
1.3 Conventions and abbreviations.....	5
1.4 The process of Using FTP(S) AT Commands.....	6
1.5 Error Handling.....	7
1.5.1 Executing FTP(S) AT Commands Fails.....	7
1.5.2 PDP Activation Fails.....	7
1.5.3 Error Response of FTP(S) Server.....	7
<b>2 ATCommands for FTP(S).....</b>	<b>8</b>
<b>3 FTP(S) Examples.....</b>	<b>9</b>
3.1 FTP Function.....	9
3.1.1 Download a file from FTP server to module/Upload a file to FTP server from module....	10
3.1.2 Download a file from FTP server to serial port/Upload a file from serial port to FTP server	11
3.1.3 Directory Operations.....	12
3.2FTPS Function.....	13
3.1.4 Download a file from FTPS server to module/Upload a file to FTPS server from module	13
3.1.5 Download a file from FTPS server to serial port/Upload a file from serial port to FTPS	15
server	
3.1.6 Directory Operations.....	16
<b>4 Appendix.....</b>	<b>18</b>
4.1 Summary of Error Codes.....	18

# 1 Introduction

## 1.1 Purpose of the document

Based on module AT command manual, this document will introduce FTP(S) application process. Developers could understand and develop application quickly and efficiently based on this document.

## 1.2 Related documents

[1] A76XXSeries\_AT Command Manual

## 1.3 Conventions and abbreviations

In this document, the GSM engines are referred to as following term:

ME (Mobile Equipment);

MS (Mobile Station);

TA (Terminal Adapter);

DCE (Data Communication Equipment) or facsimile DCE (FAX modem, FAX board);

In application, controlling device controls the GSM engine by sending AT Command via its serial interface.

The controlling device at the other end of the serial line is referred to as following term:

TE (Terminal Equipment);

DTE (Data Terminal Equipment) or plainly "the application" which is running on an embedded system;

Other Conventions:

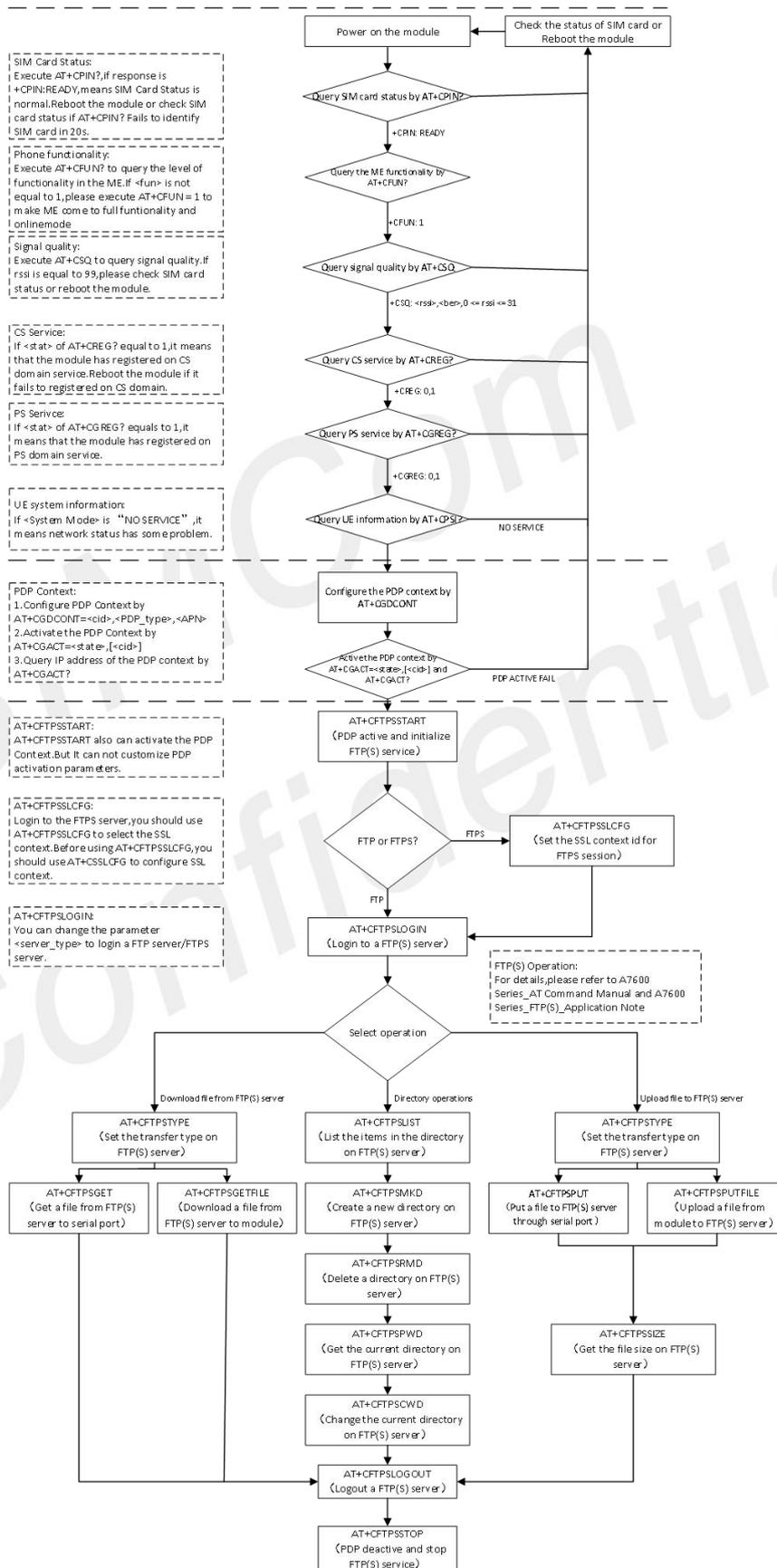
PDP(Packet Data Protocol);

FTP(File Transfer Protocol);

SSL(Secure Sockets Layer);

TLS(Transport Layer Security);

## 1.4 The process of Using FTP(S) AT Commands



## 1.5 Error Handling

### 1.5.1 Executing FTP(S) AT Commands Fails

When executing FTP(S) AT commands, if ERROR response 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?.

### 1.5.2 PDP Activation Fails

If it is failed to activate a PDP context with AT+CGACT command, please check the following configurations:

1. Query the PS domain status by AT+CGREG? and make sure the PS domain has been registered.
2. Query the PDP context parameters by AT+CGDCONT? and make sure the APN of the specified PDP context has been set.
3. Make sure the specified PDP context ID is neither used by PPP nor activated by AT+CGACT command.

If all above configurations are correct, but activating the PDP context by AT+CGACT command still fails, please reboot the module to resolve this issue. After rebooting the module, please check the configurations mentioned above for at least.

### 1.5.3 Error Response of FTP(S) Server

When the CFTPSXXX: <errorcode> is not 0, it indicates an error code replied from FTP(S) server.

For example, if <errorcode> is 1, ssl configure may be wrong. If <errorcode> is 17, the file or directory may not exist. For more details, please refer to A7600 Series\_AT Command Manual\_V1.01.08.

## 2 ATCommands for FTP(S)

Command	Description
<b>AT+CFTPSSTART</b>	Start FTP(S) service
<b>AT+CFTPSSTOP</b>	Stop FTP(S) Service
<b>AT+CFTPSLOGIN</b>	Login to a FTP(S)server
<b>AT+CFTPSLOGOUT</b>	Logout a FTP(S) server
<b>AT+CFTPSLIST</b>	List the items in the directory on FTP(S) server
<b>AT+CFTPSMKD</b>	Create a new directory on FTP(S) server
<b>AT+CFTPSRMD</b>	Delete a directory on FTP(S) server
<b>AT+CFTPSCWD</b>	Change the current directory on FTP(S) server
<b>AT+CFTPSPWD</b>	Get the current directory on FTP(S) server
<b>AT+CFTPSDELE</b>	Delete a file on FTP(S) server
<b>AT+CFTPSGETFILE</b>	Download a file from FTP(S) server to module
<b>AT+CFTPSPUTFILE</b>	Upload a file from module to FTP(S) server
<b>AT+CFTPSGET</b>	Get a file from FTP(S) server to serial port
<b>AT+CFTPSPUT</b>	Put a file to FTP(S) server through serial port
<b>AT+CFTPSSIZE</b>	Get the file size on FTP(S) server
<b>AT+CFTPSSINGLEIP</b>	Set FTP(S) data socket address type
<b>AT+CFTPSTYPE</b>	Set the transfer type on FTP(S) server
<b>AT+CFTPSLFCFG</b>	Set the SSL context id for FTPS session

For more detailed information, please refer to A76xxSeries\_AT Command Manual.

## 3 FTP(S) Examples

Before all FTP(S) related operations, we should ensure the following:  
Ensure network is available:

**AT+CSQ**

+CSQ: 23,0

OK

**AT+CREG?**

+CREG: 0,1

OK

**AT+CGREG?**

+CGREG: 0,1

OK

**AT+CPSI?**

+CPSI:

LTE,Online,460-00,0x333C,39589680,308,EUT

RAN-BAND3,1350,5,0,0,54,0,22

OK

//In WCDMA/GSW,you need to continue to execute the following instructions

**AT+CGDCONT=cid,"ip","APN"**

OK

**AT+CGACT=1,cid**

OK

**AT+CGACT?**

+CGACT: 1,1

OK

### 3.1 FTP Function

### 3.1.1 Download a file from FTP server to module/Upload a file to FTP server from module

```
//Example of FTP upload/download
AT+CFTPSSTART //Start FTP service
OK

+CFTPSSTART: 0
AT+CFTPSLOGIN="255.255.255.255",21,"user name","password",0 //Login to a FTP server
OK

+CFTPSLOGIN: 0
AT+CFTPSLIST="/" //List all ms of directory "/"
OK

+CFTPSLIST: DATA,175
-rw-r--r-- 1 ftp ftp 121 Mar 11 16:24
124.txt
drwxr-xr-x 1 ftp ftp 0 Jan 13
2020 TEST113
drwxr-xr-x 1 ftp ftp 0 Jan 19
2020 TEST1155

+CFTPSLIST: 0
AT+CFTPSPWD //Get current directory of FTP server
OK

+CFTPSPWD: "/"
AT+CFTPSGETFILE="124.txt" //Download a file from FTP server to module.
OK

+CFTPSGETFILE: 0
AT+CFTPSPUTFILE="124.TXT" //Upload a file to FTP server from module
OK

+CFTPSPUTFILE: 0
AT+CFTPSLOGOUT //Logout FTP server
OK

+CFTPSLOGOUT: 0
AT+CFTPSSTOP //Stop FTP server
OK
```

+CFTPSSTOP: 0

### 3.1.2 Download a file from FTP server to serial port/Upload a file from serial port to FTP server

//Example of FTP upload/download

**AT+CFTPSSTART** //Start FTP service

OK

+CFTPSSTART: 0

**AT+CFTPSLOGIN="255.255.255.255",21,"user name", "password",0** //Login to a FTP server

OK

+CFTPSLOGIN: 0

**AT+CFTPSLIST="/"** //List all ms of directory "/"

OK

+CFTPSLIST: DATA,175

-rw-r--r-- 1 ftp ftp 121 Mar 11 16:24  
124.txt

-rw-r--r-- 1 ftp ftp 3 Mar 19 17:10  
test1131.txt

drwxr-xr-x 1 ftp ftp 0 Jan 13  
2020 TEST113

drwxr-xr-x 1 ftp ftp 0 Jan 19  
2020 TEST1155

+CFTPSLIST: 0

**AT+CFTPSPWD** //Get current directory of FTP server

OK

+CFTPSPWD: "/"

**AT+CFTPSGET="test1131.txt"** //Downloda a file from FTP server to serial port

OK

+CFTPSGET: DATA,3

321

+CFTPSGET: 0

**AT+CFTPSPUT="test1131.txt"** //Upload a file to FTP server from serial port

> (input the data,and use ctrl+Z to complete upload)

OK

```

+CFTPSPUT: 0
AT+CFTPSPUT="test1131.txt",3 //Upload a file to FTP server from serial port by
> (input the data,when the length is 3,Upload limiting the length.
will complete automatically)
OK

+CFTPSPUT: 0

AT+CFTPSLOGOUT //Logout FTP server
OK

+CFTPSLOGOUT: 0
AT+CFTPSSTOP //Stop FTP server
OK

+CFTPSSTOP: 0

```

### 3.1.3 Directory Operations

```

//Example of FTP directory operations
AT+CFTPSSTART //Start FTP service
OK

+CFTPSSTART: 0
AT+CFTPSLOGIN="255.255.255.255",21,"user //Login to a FTP server
name","password",0
OK

+CFTPSLOGIN: 0
AT+CFTPSLIST="/" //List all ms of directory "/"
OK

+CFTPSLIST: DATA,175
-rw-r--r-- 1 ftp ftp 121 Mar 11 16:24
124.txt
-rw-r--r-- 1 ftp ftp 3 Mar 19 17:10
test1131.txt
drwxr-xr-x 1 ftp ftp 0 Jan 13
2020 TEST113
drwxr-xr-x 1 ftp ftp 0 Jan 19
2020 TEST1155

```

```
+CFTPSLIST: 0
AT+CFTPSPWD                               //Get current directory of FTP server
OK

+CFTPSPWD: "/"
AT+CFTPSMKD="TEST1129"                     //Create a new directory
OK

+CFTPSMKD: 0
AT+CFTPSCWD="TEST1129"                     //Change to the specified directory
OK

+CFTPSCWD: 0
AT+CFTPSPWD                               //Get current directory of FTP server
OK

+CFTPSPWD: "/TEST1129"
AT+CFTPSCWD                                 //Change to the specified directory
OK

+CFTPSCWD: "/"
AT+CFTPSRMD="/TEST1129"                   //Delete the specified directory
OK

+CFTPSRMD: 0
AT+CFTPSLOGOUT                             //Logout FTP server
OK
+CFTPSLOGOUT: 0
AT+CFTPSSTOP                               //Stop FTP server
OK

+CFTPSSTOP: 0
```

## 3.2FTPS Function

### 3.1.4 Download a file from FTPS server to module/Upload a file to FTPS server from module

//Example of FTP(S) upload/download

```
AT+CFTPSSTART //Start FTP service
OK

+CFTPSSTART: 0
AT+CFTPSLOGIN="255.255.255.255",990,"use //Login to a Implicit FTPS server.
rname","password"
OK

+CFTPSLOGIN: 0
AT+CFTPSLIST="/" //List all ms of directory "/"
OK

+CFTPSLIST: DATA,175
-rw-r--r-- 1 ftp ftp          121 Mar 11 16:24
124.txt
drwxr-xr-x 1 ftp ftp          0 Jan 13
2020 TEST113
drwxr-xr-x 1 ftp ftp          0 Jan 19
2020 TEST1155

+CFTPSLIST: 0
AT+CFTPSPWD //Get current directory of FTP server
OK

+CFTPSPWD: "/"
AT+CFTPSGETFILE="124.txt" //Download a file from FTP server to module.
OK

+CFTPSGETFILE: 0
AT+CFTPSPUTFILE="124.TXT" //Upload a file to FTP server from module
OK

+CFTPSPUTFILE: 0
AT+CFTPSLOGOUT //Logout FTP server
OK

+CFTPSLOGOUT: 0
AT+CFTPSSTOP //Stop FTP server
OK

+CFTPSSTOP: 0
```

### 3.1.5 Download a file from FTPS server to serial port/Upload a file from serial port to FTPS server

```
//Example of FTP(S) upload/download
AT+CFTPSSTART //Start FTP service
OK

+CFTPSSTART: 0
AT+CFTPSLOGIN="255.255.255.255",990,"use //Login to a Implicit FTPS server.
rname","password"
OK

+CFTPSLOGIN: 0
AT+CFTPSLIST="/" //List all ms of directory "/"
OK

+CFTPSLIST: DATA,175
-rw-r--r-- 1 ftp ftp      121 Mar 11 16:24
124.txt
-rw-r--r-- 1 ftp ftp      3 Mar 19 17:10
test1131.txt
drwxr-xr-x 1 ftp ftp      0 Jan 13
2020 TEST113
drwxr-xr-x 1 ftp ftp      0 Jan 19
2020 TEST1155

+CFTPSLIST: 0
AT+CFTPSPWD //Get current directory of FTP server
OK

+CFTPSPWD: "/"
AT+CFTPSGET="test1131.txt" //Downloda a file from FTP server to serial port
OK

+CFTPSGET: DATA,3
321
+CFTPSGET: 0
AT+CFTPSPUT="test1131.txt" //Upload a file to FTP server from serial port
> (input the data,and use ctrl+Z to complete
upload)
OK

+CFTPSPUT: 0
AT+CFTPSPUT="test1131.txt",3 //Upload a file to FTP server from serial port by
```

> (input the data,when the length is 3,Upload limiting the length.  
will complete automatically)  
OK

+CFTPSPUT: 0

**AT+CFTPSLOGOUT** //Logout FTP server  
OK

+CFTPSLOGOUT: 0

**AT+CFTPSSTOP** //Stop FTP server  
OK

+CFTPSSTOP: 0

### 3.1.6 Directory Operations

//Example of FTP(S) directory operations

**AT+CFTPSSTART** //Start FTP service  
OK

+CFTPSSTART: 0

**AT+CFTPSLOGIN="255.255.255.255",660,"use  
rname","password"** //Login to a Implicit FTPS server  
OK

+CFTPSLOGIN: 0

**AT+CFTPSLIST=""** //List all ms of directory ""  
OK

+CFTPSLIST: DATA,175

-rw-r--r-- 1 ftp ftp 121 Mar 11 16:24  
124.txt

-rw-r--r-- 1 ftp ftp 3 Mar 19 17:10  
test1131.txt

drwxr-xr-x 1 ftp ftp 0 Jan 13  
2020 TEST113

drwxr-xr-x 1 ftp ftp 0 Jan 19  
2020 TEST1155

+CFTPSLIST: 0

**AT+CFTPSPWD** //Get current directory of FTP server

OK

+CFTPSPWD: "/"

**AT+CFTPSPWD="TEST1129"**

//Create a new directory

OK

+CFTPSPWD: 0

**AT+CFTPSCWD="TEST1129"**

//Change to the specified directory

OK

+CFTPSCWD: 0

**AT+CFTPSPWD**

//Get current directory of FTP server

OK

+CFTPSPWD: "/TEST1129"

**AT+CFTPSCWD**

//Change to the specified directory

OK

+CFTPSCWD: "/"

**AT+CFTPSPWD="/TEST1129"**

//Delete the specified directory

OK

+CFTPSPWD: 0

**AT+CFTPSCWD**

//Logout FTP server

OK

+CFTPSCWD: 0

**AT+CFTPSPWD**

//Stop FTP server

OK

+CFTPSPWD: 0

## 4 Appendix

### 4.1 Summary of Error Codes

Code of <errcode>	Description
0	Success
1	SSL alert
2	Unknown error
3	Busy
4	Connection closed by server
5	Timeout
6	Transfer failed
7	File not exists or any other memory error
8	Invalid parameter
9	Operation rejected by server
10	Network error
11	State error
12	Failed to parse server name
13	Create socket error
14	Connect socket failed
15	Close socket failed
16	SSL session closed
17	File error, file not exist or other error.