



SIM82XX_SIM83XX Series_ FTP(S)_Application Note

5G Module

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About Document

Version History

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V1.00	2020.3.23	Xianxiang Ma	First Release
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Scope

This document applies to the SIMCom SIM820X series, SIM821X series, SIM826X series and SIM83XX series.

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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] SIM82XX_SIM83XX Series_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;

2 FTP Introduction

FTP (File Transfer Protocol) is an application layer protocol. File Transfer Protocol is a standard Protocol for transferring files over a network, using the client / server mode. It's part of the Communications Protocol Application Layer.

2.1 Characteristic

A control connection is a communication link established between a client protocol interpreter and a server protocol interpreter for exchanging commands and responses. A data connection is a full-duplex connection for transmitting data. The transfer of data can occur between DTP for the server data transfer process and DTP for the client, or between DTP for the two servers.

2.2 The process of Using FTP(S) AT Commands

Step 1: Ensure GPRS network is available before performing FTP(S) related operations.

Step 2: Configure the parameter of PDP context by AT+CGDCONT.

Step 3: Activate the PDP context to start FTP(S) service by AT+CFTPSSTART.

Step 4: Login FTP(S) server by AT+CFTPSLOGIN.

Step 5: Download a file and save to module by AT+CFTPSGETFILE.

Step 6: Use AT+CFTPSABORT abort any FTP(S) operation.

Step 7: Use AT+CFTPSLOGOUT to logout FTP(S) server while finish FTP(S) operation.

Step 8: Deactivate the PDP context to stop FTP(S) service by AT+CFTPSSTOP.

Note: make sure you login to a FTP(S) sever successfully before any other FTP(S) operations.

3 AT Commands for FTP(S)

Command	Description
AT+CFTPSSTART	Start FTP(S) service
AT+CFTPSSTOP	Stop FTP(S) Service
AT+CFTPSLOGIN	Login to a FTP(S)server
AT+CFTPSLOGOUT	Logout FTP(S) server
AT+CFTPSMKD	Create a new directory on FTP(S) server
AT+CFTPSRMD	Delete a directory on FTP(S) server
AT+CFTPSDELE	Delete a file on FTP(S) server
AT+CFTPSCWD	Change the current directory on FTP(S) sever
AT+CFTPSPWD	Get the current directory on FTP(S) server
AT+CFTPSTYPE	set the transfer type on FTP(S) serve
AT+CFTPSLIST	List the items in the directory on FTP(S) server
AT+CFTPSGETFILE	Get a file from FTP(S) server to module
AT+CFTPSPUTFILE	Put a file from module to FTP(S) server
AT+CFTPSGET	Get a file from FTP(S) server to serial port
AT+CFTPSPUT	Put a file to FTP(S) server through serial port
AT+CFTPSSINGLEIP	Set FTP(S) data socket address type
AT+CFTPSCACHERD	Output cached data to MCU
AT+CFTPSABORT	Abort FTP(S) operations
AT+CFTPSSIZE	Get the File Size on FTP(S) server

For detail information, please refer to "SIM82XX_SIM83XX Series_AT Command Manual".

4 Bearer Configuration

Usually module will register PS service automatically.

4.1 PDN Auto-activation

AT+CPIN?

+CPIN: READY

// Check Status of SIM Card

OK

AT+CSQ

+CSQ: 27,99

// Check RF Signal

OK

AT+CGREG?

+CGREG: 0,1

// Check Status of PS Service

OK

AT+CEREG?

+CEREG: 0,1

OK

AT+COPS?

+COPS: 0,0,"CHN-UNICOM",13

// Check Information of Operator

OK

AT+CPSI?

+CPSI: NR5G_SA,Online,460-00,0x161816,13190066179,476,NR5G_BAND41,504990,-1130,-140,30

// Check Information of Network

OK

AT+CGDCONT=1, "IP", "CMNET"

// Set PDP context Parameters

OK

AT+CGDCONT?

+CGDCONT: 1,"IPV4","CMNET","0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0",0,0,0,0

// Check Information of PDP Context

OK

5 FTP(S) Examples

5.1 Access to FTP server

5.1.1 Download a file from FTP server to module/upload a file to FTP server form module

//Example of Download a file from FTP server to module/upload a file to FTP server form module

```

AT+CFTPSSTART                                //start FTP service
OK

+CFTPSSTART: 0
AT+CFTPSINGLEIP=1                             //set data connection use the same address of
OK                                             control connection
AT+CFTPSLOGIN="serveraddr",21,"username      //login to a FTP server
", "password",0
OK

+CFTPSLOGIN: 0
AT+CFTPSLIST="/"                             //list all items of directory "/"
OK

+CFTPSLIST: DATA,1024
drw-rw-rw-   1 user      group          0
Aug 23 15:37 .
drw-rw-rw-   1 user      group          0
Aug 23 15:37 ..
-rw-rw-rw-   1 user      group          4
Aug 11 2016 008test
-rw-rw-rw-   1 user      group      5505024
Jun  7 17:27 0529-0607.zip
drw-rw-rw-   1 user      group          0
Apr  8 19:15 1
-rw-rw-rw-   1 user      group      1388870
Apr 27 2017 1.isf
-rw-rw-rw-   1 user      group          2

```

```

Aug 23 2016 1.txt
-rw-rw-rw- 1 user group 21
Jan 15 2018 11.txt
-rw-rw-rw- 1 user group 41
Apr 8 19:32 11111.txt
-rw-rw-rw- 1 user group 327680
Mar 15 2017 111ww.txt

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

+CFTSPWD: "/"
AT+CFTPSGETFILE="111ww.txt" //download a file from FTP server to module
OK directory "F:/"

+CFTPSGETFILE: 0
AT+FSCD=F:/ ///change current directory to "F:/"
+FSCD: F:/

OK
AT+FSLS //list all items in "F:/"
+FSLS: FILES: 111ww.txt

OK
AT+CFTPSPUTFILE="Code_204_NOK.qmdl" //upload file from "F:/" to FTP server
OK

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

+CFTPSLOGOUT: 0
AT+CFTPSSTOP //stop FTP service
OK

+CFTPSSTOP: 0

```

5.1.2 Download file from FTP server to serial port /upload file to FTP server

//Example of download a file from FTP server to serial port and how to upload a file from serial port to FTP server.

```

AT+CFTPSSTART                                     //start FTP service
OK

+CFTPSSTART: 0
AT+CFTPS_SINGLEIP=1                               //Set HTTP body length
OK

AT+CFTPS_LOGIN="serveraddr",21,"username          // login to a FTP server
", "password",0
OK

+CFTPS_LOGIN: 0
AT+CFTPS_LIST="/"                                //list all items of directory "/"
OK

+CFTPS_LIST: DATA,1024
drwxr-xr-x 1 ftp ftp                               0 Sep 01
2020
-rw-r--r-- 1 ftp ftp                               1813 Nov 14 15:03
00000000001111111111222222222233333333
33444444444445555555555666666666677777777
778888888888999999999900000000.txt
-rw-r--r-- 1 ftp ftp                               1708032 Sep 09
2020 1.6m.txt
-rw-r--r-- 1 ftp ftp                               6693774 Nov 14 13:13
1.isf
-rw-r--r-- 1 ftp ftp                               27217496 Dec 02 15:40
100M.rar
-rw-r--r-- 1 ftp ftp                               1024 Nov 24 19:37
1024.txt
-rw-r--r-- 1 ftp ftp                               10527760 Nov 18 18:06
10M.txt
drwxr-xr-x 1 ftp ftp                               0 Dec 01
10:36 1111
-rw-r--r-- 1 ftp ftp                               0 Nov 16 19:51
1116.gif
-rw-r--r-- 1 ftp ftp                               0 Nov 17 16:10
11160.mid
-rw-r--r-- 1 ftp ftp                               0 Nov 18 19:03
1118.txt
drwxr-xr-x 1 ftp ftp                               0 Dec 09
09:46 123
-rw-r--r-- 1 ftp ftp                               5 Nov 25 19:30
12345.txt
-rw-r--r-- 1 ftp ftp                               14745600 Nov 13 10:22
14M
-rw-r--r-- 1 ftp ftp                               14745600 Nov 18 17:53

```

```
14M.txt
-rw-r--r-- 1 ftp ftp          1534 Aug 14
2020 1500data.t

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

+CFTPSPWD: "/"
AT+CFTPSPUT="wwwputsss"                   //upload a file from serial port, please start to input
> FSDFSFSFSD                               data while ">"received.
OK

+CFTPSPUT: 0
AT+CFTPSGET="wwwputsss"                   //download the file sent by AT+CFTPSPUT from
OK                                           FTP server to serial port.

+CFTPSGET: DATA,10
FSDFSFSFSD
+CFTPSGET: 0
AT+CFTPSLOGOUT                             //logout FTP server
OK

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

+CFTPSSTOP: 0
```

5.2 Access to FTPS server

5.2.1 Download a file from FTPS server to module/upload a file from module

//Example of download a file from FTPS sever to module and how to upload a file from module to FTPS server:

```
AT+FTPSSTART                               //start FTP service
OK

+CFTPSSTART: 0
```

```

AT+CFTPSSINGLEIP=1 //set data connection use the same address of
OK control connection
AT+CFTPSLOGIN="serveraddr",990,"username //login to a FTPS server
","password",3
OK

+CFTPSLOGIN: 0
AT+CFTPSLIST="/" //list all items of directory "/"
OK

+CFTPSLIST: DATA,963
-rw-r--r-- 1 ftp ftp 8 Apr 13 2018
t0411982.txt
-rw-r--r-- 1 ftp ftp 8 Apr 13 2018
t0411988.txt
-rw-r--r-- 1 ftp ftp 88 Apr 11 2018
t0412.txt
-rw-r--r-- 1 ftp ftp 88 Aug 21 11:12
t0821234567.txt
-rw-r--r-- 1 ftp ftp 10 Jun 15 2018
t1.txt
-rw-r--r-- 1 ftp ftp 10 Apr 17 2018
t2.txt

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

+CFTPSPWD: "/"
AT+CFTPSGETFILE="update2.zip" //download a file from FTPS server to module
OK directory"F:/"

+CFTPSGETFILE: 0
AT+FSCD=F: //change current directory to F:/
+FSCD: F:/

OK
AT+FSLs //list all items in directory F:/
+FSLs: FILES:
POST_JPG.DAT
update2.zip

OK
AT+CFTPSPUTFILE="Code_204_NOK.qmdl" //upload a file from directory "F:/" to FTPS server
OK

```

```
+CFTPSPUTFILE: 0
AT+CFTPSLOGOUT // log out FTPS server
OK

+CFTPSLOGOUT: 0
AT+CFTPSSTOP //deactive the PDP context, stop FTP service.
OK

+CFTPSSTOP: 0
```

5.2.2 Download a file to serial port/upload a file from serial port

//Example of download a file form FTPS sever to serial port and how to upload a file from serial port to FTPS server:

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

+CFTPSSTART: 0
AT+CFTPSINGLEIP=1 //set data connection use the same address of
OK //control connection

AT+CFTPSLOGIN="serveraddr",990,"username //login to a FTPS server
","password",3
OK

+CFTPSLOGIN: 0
AT+CFTPSLIST="/" //Set connect server parameter
OK

+CFTPSLIST: DATA,963
-rw-r--r-- 1 ftp ftp 8 Apr 13 2018
t0411982.txt
-rw-r--r-- 1 ftp ftp 8 Apr 13 2018
t0411988.txt
-rw-r--r-- 1 ftp ftp 88 Apr 11 2018
t0412.txt
-rw-r--r-- 1 ftp ftp 88 Aug 21 11:12
t0821234567.txt
-rw-r--r-- 1 ftp ftp 10 Jun 15 2018
t1.txt
-rw-r--r-- 1 ftp ftp 10 Apr 17 2018
t2.txt
```

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

+CFTPSPWD: "/"
AT+CFTPSPUT="wwwpute",10                       //upload a file from serial to FTPS server
>qqqqqqqqqqq
OK

+CFTPSPUT: 0
AT+CFTPSGET="wwwpute",0                       //download the file uploaded by AT+CFTPSPUT
OK                                              to serial port

+CFTPSGET: DATA,10
qqqqqqqqqqq
+CFTPSGET: 0
AT+CFTPSLOGOUT                                  // log out FTPS server
OK

+CFTPSLOGOUT: 0
AT+CFTPSSTOP                                   //deactive the PDP context, stop FTP service.
OK

+CFTPSSTOP: 0
```

5.2.3 FTP Resume-From-Break-Point

//Example of uses the resume-from-break-point function of the module to download a file in FTP server to the directory F:/.

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

+CFTPSSTART: 0
AT+CFTPSLOGIN="112.74.93.163",21,"tmf","tmf123",0 //login ftp server
OK

+CFTPSLOGIN: 0
AT+FSCD=F:/                                   //change current directory to F:/
+FSCD: F:/
OK
```

```
AT+FSLS                                     //list all items in directory F:/
+FSLS: FILES:
data_bk_ver.txt
need_adb_mass_storage
1M.txt

OK
AT+CFTPSSIZE="test0129"                     //get file size
OK

+CFTPSSIZE:1261568
AT+CFTPGETFILE="test0129",1,3               //the file exists in the ftp server, while not in the
OK                                           file system of the module, in this case, if use the
                                           parameter //<offset>, <err_code> 7 will be
                                           returned.
+CFTPGETFILE: 7                             //download the file test0129 to directory F:/
AT+CFTPGETFILE="test0129",1
OK
AT+CSHELL="sync"                           //this command is used to output the data in
OK                                           buffer to the disk of module.It is not mandatory,
//here reset the module                    only used for test, avoiding the data lost.
+CPIN: READY

SMS DONE

PB DONE
AT+FSCD=F:/                                //change current directory to F:/
+FSCD: F:/

OK
AT+FSLS                                     //list all items in directory F:/
+FSLS: FILES:
data_bk_ver.txt
test0129
need_adb_mass_storage
1M.txt

OK
AT+FSATTRI="test0129"                       //query the size of the file "test0129" which has
+FSATTRI: 401408,1980/01/06 15:49:11 Sun   been downloaded last time.

OK
AT+CFTPSTART                                // start FTP service
OK
```

+CFTPSSTART: 0

AT+CFTPSLOGIN="112.74.93.163",21,"tmf","tmf123",0 //login server

OK

+CFTPSLOGIN: 0

AT+CFTPSGETFILE="test0129",1,401408 //use resume-from-break-point, the <offset> should be the size of downloaded file.

OK

+CFTPSGETFILE: 0

AT+FSATTRI="test0129" //the file is successfully downloaded, query the size of the file, it's the same size as the file in ftp server

+FSATTRI: 1261568,1980/01/06 15:58:13 Sun

OK

AT+CFTPSSIZE="test0129"

//get file size

OK

+CFTPSSIZE: 1261568