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SIM7000 Series_FTP_Application Note_V1.00



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Scope

This document presents the AT command of FTP operation and application examples. This document can apply to SIM7000 series modules with FTP function.

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1 Description

This chapter introduces the FTP application features of SIM7000 series modules

1.1 Features

- 1) SIM7000 series modules support File Transfer Protocol application, which provides a mode to interact with FTP server. The basic application contains GET, PUT methods, it also supports broken transfer resuming function. PUT method supports APPE, STOR and other modes.

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2 AT commands

Command	Description
AT+FTPPORT	Set FTP control port
AT+FTPMODE	Set active or passive FTP mode
AT+FTPTYPE	Set the type of data to be transferred
AT+FTPPUTOPT	Set FTP put type
AT+FTPCID	Set FTP bearer profile identifier
AT+FTPREST	Set resume broken download
AT+FTPSERV	Set FTP server address
AT+FTPUN	Set FTP user name
AT+FTPPW	Set FTP password
AT+FTPGETNAME	Set download file name
AT+FTPGETPATH	Set download file path
AT+FTPPUTNAME	Set upload file name
AT+FTPPUTPATH	Set upload file path
AT+FTPGET	Download file
AT+FTPPUT	Set upload file
AT+FTPDELE	Delete specified file in FTP server
AT+FTPSIZE	Get the size of specified file in FTP server
AT+FTPSTATE	Get the FTP state
AT+FTPEXTPUT	Extend upload file
AT+FTPMKD	Make directory on the remote machine
AT+FTPRMD	Remove directory on the remote machine
AT+FTPLIST	List contents of directory on the remote machine
AT+FTPEXTGET	Extend download file
AT+FTPETPUT	Upload File
AT+FTPETGET	Download File
AT+FTPQUIT	Quit current FTP session
AT+FTPRENAME	Rename the Specified File on the Remote Machine
AT+FTPMDTM	Get the Last Modification Timestamp of Specified File on the Remote Machine

For more detail introduction, please refer to SIM7000 Series_AT Command Manual.

3 Examples

In the "Grammar" columns of following tables, input of AT commands are in black, module return values are in blue.

3.1 Bearer Configure

Grammar	Description
AT+SAPBR=3,1,"APN","CMNET" OK	Configure bearer profile 1
AT+SAPBR=1,1 OK	To open bearer
AT+SAPBR=2,1 +SAPBR:1,1,"10.89.193.1" OK	To query bearer
AT+SAPBR=0,1 OK	To close bearer

3.2 FTP GET Method

Download data from FTP server.

Grammar	Description
AT+FTPCID=1 OK AT+FTPSERV="116.228.221.52" OK AT+FTPUN="sim.cs1" OK AT+FTPPW="*****" OK AT+FTPGETNAME="1K.txt" OK AT+FTPGETPATH="/"	Set parameters for FTP session.
AT+FTPGET=1 OK +FTPGET: 1,1	Open the FTP get session. Data are available.

<pre>AT+FTPGET=2,1024 +FTPGET: 2,50 01234567890123456789012345678901234 567890123456789 OK</pre>	<p>Request to read 1024 bytes, but Only 50 bytes are now available.</p>
<pre>AT+FTPGET=2,1024 +FTPGET: 2,0 OK +FTPGET: 1,1</pre>	<p>Request to read 1024 bytes again. No byte is now available, but it is not the end of session.</p> <p>If the module receives data but user do not input "AT+FTPGET:2, <reqlength>" to read data, "+FTPGET:1,1" will be shown again in a certain time.</p>
<pre>AT+FTPGET=2,1024 +FTPGET: 2,1024 01234567890123456789012345678901234 5678901234567890.....1234 OK +FTPGET:1,0</pre>	<p>Request to read 1024 bytes. 1024 bytes are now available.</p> <p>Data transfer finished. The connection to the FTP server is closed.</p>

3.3 FTP PUT Method

Upload data to FTP server.

Grammar	Description
<pre>AT+FTPCID=1 OK AT+FTPSERV="116.228.221.52" OK AT+FTPUN="sim.cs1" OK AT+FTPPW="*****" OK AT+FTPPUTNAME="1K.txt" OK AT+FTPPUTPATH="/"</pre>	<p>Set parameters for FTP session.</p>
<pre>AT+FTPPUT=1 OK</pre>	<p>Open the FTP put session.</p>
<pre>+FTPPUT: 1,1,1360</pre>	<p>FTP session is ready for uploading. 1360 is the max length of data which can be sent at a time. It depends on the network status.</p>

<pre>AT+FTPPUT=2,100 +FTPPUT: 2,100 OK +FTPPUT: 1,1,1360</pre>	<p>Client requests to send 100 bytes. Response indicates that user must input 100 bytes for transferring now. <i>It is ready to receive data from UART, and DCD has been set to low.</i> <i>All data has been received over, and DCD is set to high.</i> URC indicates that the FTP session is ready to transfer more data.</p>
<pre>AT+FTPPUT=2,0 OK +FTPPUT: 1,0</pre>	<p>No more data will be uploaded, the FTP session will be closed. Data transfer is finished. The connection to the FTP server is closed.</p>

During FTP session, different failure may occur because of bad network environment or other reasons. Some common failure includes timeout failure and wrong password failure.

3.4 FTP Time out

Time out occurs during FTP session because of different reasons.

Grammar	Description
<pre>AT+FTPGET=1 OK +FTPGET: 1,64</pre>	<p>Open the FTP Get session. If the status of the network is poor, it may be time out. The connection to the FTP server is closed.</p>
<pre>AT+FTPGET=1 OK +FTPGET: 1,1 +FTPGET: 1,1 +FTPGET: 1,1 +FTPGET: 1,64</pre>	<p>Open the FTP Get session. Data are available. If customer does not use "AT+FTPGET:2,<reqlength>" to read data, "+FTPGET:1,1" will be shown again in a certain time. If the user does not read data for a long time, the session will time out. The connection to the FTP server is closed.</p>

3.5 FTP Error

Error occurs during FTP applications because of wrong parameter setting.

Grammar	Description
<pre>AT+FTPPW="3214567" OK</pre>	<p>Set wrong password</p>

AT+FTPGET=1 OK +FTPGET: 1,72	Open the FTP Get session FTP session password error. The connection to the FTP server is closed.
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Note: Other errors, you can refer to “AT+FTPGET” command in 《SIM7000 Series AT Command Manual》

3.6 FTP Operation Error

Error occurs during FTP applications because of wrong operating.

Grammar	Description
AT+FTPGET=1 OK +FTPGET: 1,66	Open the FTP Get session. The parameter of "get file name" is empty. It shows ftp operation error.
AT+FTPPUT=1 OK	Open the FTP PUT session.
AT+FTPPUT=1 OK +FTPPUT: 1,66	Open the FTP PUT session again. Show ftp operation error.

3.7 FTP READ and WRITE Error

Error occurs before FTP applications because of operating in wrong state.

Grammar	Description
AT+FTPGET=1 OK	Open the FTP Get session.
AT+FTPGET=2,1000 ERROR +FTPGET: 1,1	Read data before "+FTPGET:1,1" is shown. Data are available
AT+FTPGET=2,1000 +FTPGET: 2,50 01234567890123456789012345678901234 567890123456789 OK +FTPGET: 1,0	Read data after "+FTPGET: 1,1" is shown. Data transfer finished. The connection to the FTP server is closed.
AT+FTPGET=2,1000 ERROR	Read data after FTP session is stopped.
AT+FTPPUT=1 OK	Open the FTP PUT session.
AT+FTPPUT=2,1000 ERROR	Write data before "+FTPPUT: 1,1,1360" is shown.

+FTPPUT: 1,1,1360	FTP session is ready for uploading.
AT+FTPPUT=2,100 +FTPPUT: 2,100 OK	Write data after "+FTPPUT: 1,1,1360" is shown.
AT+FTPPUT=2,0 OK	No more data will be uploaded, the FTP session will be closed.
AT+FTPPUT=2,100 ERROR	Write data after FTP session is stopped.

3.8 Set FTP Download Break Point Parameter

It provides the method to use FTP broken download resuming function.

Grammar	Description
AT+FTPGET=1 OK +FTPGET: 1,1	Open the FTP Get session. Data are available.
AT+FTPGET=2,1024 +FTPGET: 2,29 wodeceshijieguo,zhgeshigeshia OK +FTPGET: 1,0	Get data of FTP server. Data transfer finished. The connection to the FTP server is closed.
AT+FTPREST=20 OK	Set the broken point.
AT+FTPGET=1 OK +FTPGET: 1,1	Open the FTP Get session. Data are available.
AT+FTPGET=2,1024 +FTPGET: 2,9 shigeshia OK +FTPGET: 1,0	Get the data begin from the broken point. Data transfer is finished. The connection to the FTP server is closed.

3.9 FTP DELE Method

Delete the specified file in FTP server.

Grammar	Description
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<pre>AT+FTPCID=1 OK AT+FTPSERV="116.228.221.52" OK AT+FTPUN="sim.cs1" OK AT+FTPPW="*****" OK AT+FTPGETNAME="1K.txt" OK AT+FTPGETPATH="/" OK</pre>	<p>Set parameters for FTP session.</p>
<pre>AT+FTPDELE=1 OK +FTPDELE: 1,0</pre>	<p>Open the FTP DELE session.</p> <p>Delete file finished. The connection to the FTP server is closed.</p>

3.10 FTP SIZE Method

Get the size of specified file in FTP server.

Grammar	Description
<pre>AT+FTPCID=1 OK AT+FTPSERV="116.228.221.52" OK AT+FTPUN="sim.cs1" OK AT+FTPPW="*****" OK AT+FTPGETNAME="1K.txt" OK AT+FTPGETPATH="/" OK</pre>	<p>Set parameters for FTP session.</p>
<pre>AT+FTPSIZE OK +FTPSIZE: 1,0,1024</pre>	<p>Open the FTP SIZE session.</p> <p>Get the size of file finished. The connection to the FTP server is closed.</p>

3.11 FTP MKD and RMD Method

Make and remove directory on the remote machine.

Grammar	Description
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AT+FTPCID=1 OK AT+FTPSERV="116.228.221.52" OK AT+FTPUN="sim.cs1" OK AT+FTPPW="*****" OK AT+FTPGETPATH="/test" OK	Set parameters for FTP session.
AT+FTPMKD OK +FTPMKD: 1,0	Open the FTP session. The directory "test" is made on the remote machine
AT+FTPFRMD OK +FTPFRMD: 1,0	Open the FTP session The directory "test" is removed from the remote machine

3.12 FTP LIST Session

List contents of remote directory.

Grammar	Description
AT+FTPCID=1 OK AT+FTPSERV="116.228.221.52" OK AT+FTPUN="sim.cs1" OK AT+FTPPW="*****" OK AT+FTPGETNAME="1K.txt" OK AT+FTPGETPATH="/"	Set parameters for FTP session.
AT+FTPLIST=1 OK +FTPLIST: 1,1	Open the FTP session. Data are available

<pre>AT+FTPLIST=2,1024 +FTPLIST: 2,126 total 0 drw-rw-rw- 1 user group 0 Oct 12 14:58. drw-rw-rw- 1 user group 0 Oct 12 14:58...</pre> <p>OK</p>	Request to read 1024 bytes, but only 126 bytes are now available
<pre>+FTPLIST: 1,0</pre>	Data transfer finished. The connection to the remote machine is closed
<pre>AT+FTPGETPATH="/1K.txt "</pre> <p>OK</p>	Get the information of a certain file "1K.txt"
<pre>AT+FTPLIST=1 OK +FTPLIST: 1,1</pre>	Open the FTP session. Data are available.
<pre>AT+FTPLIST=2,1024 +FTPLIST:2,78 -rw-rw---- 1 zhangkun simcom 8807854 Mar 19 13:31 /1K.txt</pre> <p>OK</p> <p>//Returns information of the file "1K.txt"</p> <pre>+FTPLIST: 1,0</pre>	Request to read 1024 bytes, in fact only 78 bytes are now available. Data transfer finished. The connection to the remote machine is closed.

3.13 FTP Extend PUT Method

Extend Upload data to the remote machine.

Grammar	Description
<pre>AT+FTPCID=1 OK AT+FTPSERV="116.228.221.52" OK AT+FTPUN="sim.cs1" OK AT+FTPPW="*****" OK AT+FTPPUTNAME="1K.txt" OK AT+FTPPUTPATH="/" OK</pre>	Set parameters for FTP session.

AT+FTPEXTPUT=1 OK	Set FTP to extend put method.
AT+FTPEXTPUT=2,0,1024,10000 +FTPEXTPUT: 0,1024 OK	Client requests to send 1024 bytes. Response indicates that user must input 1024 bytes for transferring. It is saved in the module. <i>It is ready to receive data from UART, and DCD has been set to low.</i> <i>All data has been received over, and DCD is set to high.</i>
AT+FTPPUT=1 OK +FTPPUT: 1,0	Open the FTP PUT session. Waiting for the module to upload the data to the remote machine. Data transfer finished. The connection to the remote machine is closed
AT+FTPEXTPUT=0 OK	Set FTP to normal put method

3.14 FTP Extend GET Method

Extend Download File

Grammar	Description
AT+FTPCID=1 OK AT+FTPSERV="116.228.221.52" OK AT+FTPUN="sim.cs1" OK AT+FTPPW="*****" OK AT+FTPGETNAME="test.txt" OK AT+FTPGETPATH="/"	Set parameters for FTP session.
AT+FTPEXTGET=1 OK	Open the FTP session.
AT+FTPEXTGET? +FTPEXTGET: 1,64136 OK	Query progress of FTP session FTP session running, 64136 bytes data has been download.
+FTPEXTGET: 1,0	File download succeed.
AT+FTPEXTGET=3,0,174125 +FTPEXTGET: 3,174125	Output receive data from position 0, length 174125 Output data

OK	Finish output
AT+FTPEXTGET=0	End FTPEXTGET.
OK	

3.15 FTPETPUT Method

Load file in RAM from file system then upload with FTTPUT.

Grammar	Description
AT+FTPCID=1 OK AT+FTPSERV="116.228.221.52" OK AT+FTPUN="sim.cs1" OK AT+FTPPW="*****" OK AT+FTPPUTNAME="test.txt" OK AT+FTPPUTPATH="/"	Set parameters for FTP session.
AT+FTPETPUT=1 OK	Start FTP etput session
+FTPETPUT: 1,1	FTP session is ready for uploading.
AT+FTPETPUT=2 OK	Client requests to send data. Response indicates that user must input data for transferring now.
+FTPETPUT:2,1 <ETX> OK	<i>It is ready to receive data from UART, and DCD has been set to low.</i> <i>To notify the module that all data has been sent, switch from data mode to command mode</i> <i>All data has been received over, and DCD is set to high.</i>
+FTPETPUT:1,0	Data transfer finished. The connection to the remote machine is closed.

3.16 FTPETGET Method

Download data from the remote machine.

Grammar	Description
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AT+FTPCID=1 OK AT+FTPSERV="116.228.221.52" OK AT+FTPUN="sim.cs1" OK AT+FTPPW="*****" OK AT+FTPGETNAME="test.txt" OK AT+FTPGETPATH="/"	Set parameters for FTP session.
AT+FTPGET=1 OK	Start FTP etget session
+FTPGET: 1,1	Enter data transfer mode.
01234567890123456789012345678901234 5678901234567890.....1234 <ETX> +FTPGET:1,0	Data transfer finished. The connection to the remote machine is closed. <i>To notify the user that all data transfer has been finished, switch from data mode to command mode.</i>

3.17 FTPQUIT Method

Quit current FTP session

Grammar	Description
AT+FTPCID=1 OK AT+FTPSERV="116.228.221.52" OK AT+FTPUN="sim.cs1" OK AT+FTPPW="*****" OK AT+FTPGETNAME="1K.txt" OK AT+FTPGETPATH="/"	Set parameters for FTP session.
AT+FTPGET=1 OK	Open the FTP session.
AT+FTPQUIT OK	Quit FTP session
+FTPGET: 1,80	Manual quit FTP session

3.18 FTP Rename Method

Rename the specified file of remote machine.

Grammar	Description
AT+FTPCID=1 OK AT+FTPSERV="116.228.221.52" OK AT+FTPUN="sim.cs1" OK AT+FTPPW="*****" OK AT+FTPGETPATH="/"	Set parameters for FTP session.
AT+FTPGETNAME="1K.txt" OK AT+FTPPUTNAME="1.txt" OK	The old file name is "1K.txt" The new file name is "1.txt"
AT+FTPRENAME OK	Execute rename function. Rename the file "1K.txt" to "1.txt".
+FTPRENAME:1,0	Rename action succeed. The file was renamed successfully

3.19 FTP MDTM Method

Get the last modification timestamp of specified file on the remote machine.

Grammar	Description
AT+FTPCID=1 OK AT+FTPSERV="116.228.221.52" OK AT+FTPUN="sim.cs1" OK AT+FTPPW="*****" OK AT+FTPGETNAME="1K.txt" OK AT+FTPGETPATH="/"	Set parameters for FTP session.
AT+FTPMDTM OK	Get the last modification timestamp.
+FTPMDTM:1,0,20140409060951	Return the timestamp successfully.

Appendix

A. Related Documents

SN	Document name	Remark
[1]	SIM7000 Series_AT Command Manual	

B. Terms and Abbreviations

Abbreviation	Description
FTP	File Transfer Protocol
APN	Access Point Name
GPRS	General Packet Radio Service
PDP	Packet Data Protocol

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