SIM7000 Series_FOTA_Application Note_V1.00

Revision Note

FAQ

Application Note

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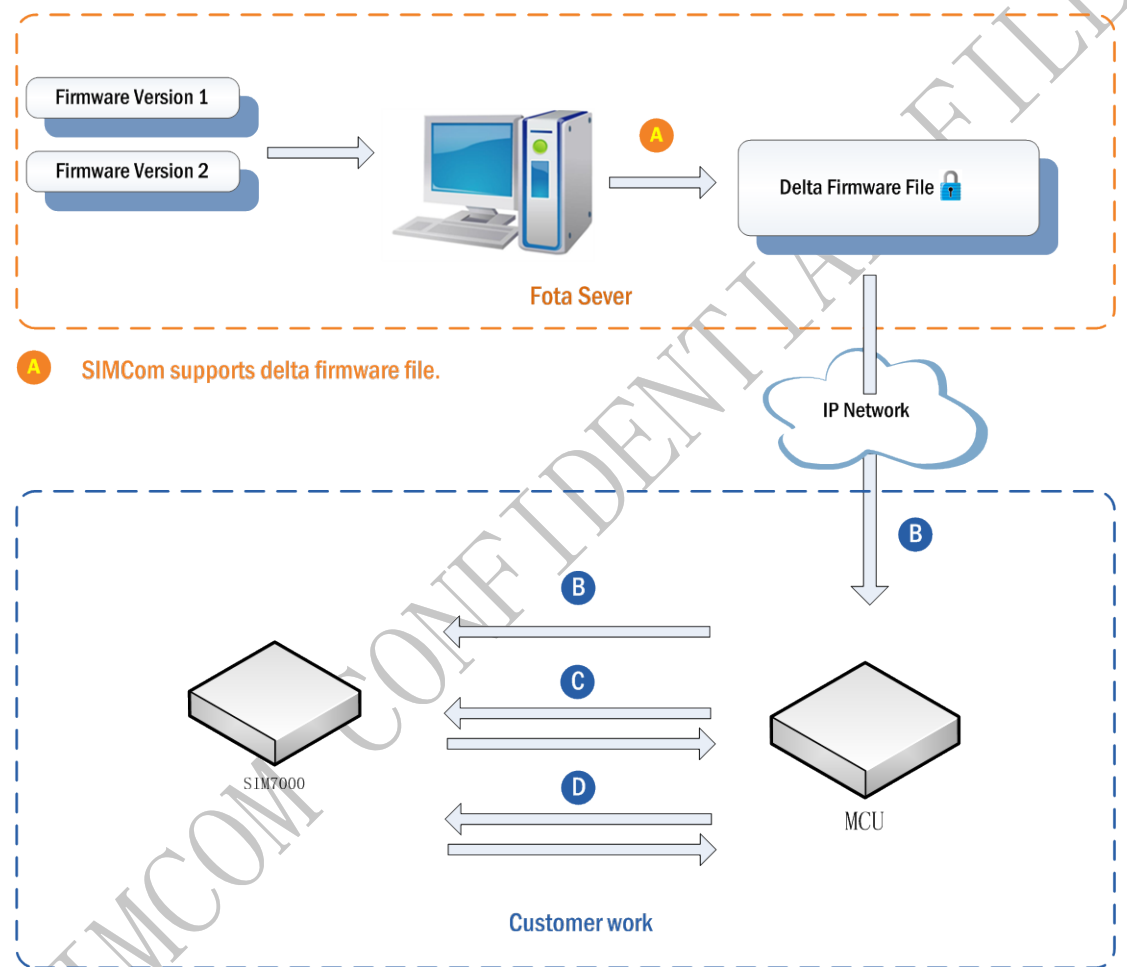| Date	Version	What is new	Author
2018-04-11	1.00	New version	Jie.hu

Scope

This document presents the AT command of FOTA operation and application method. This document can apply to SIM7000 series modules with FOTA function. Whether to support FOTA function can be querying through the "AT+CLIST" command.

1   Description

FOTA is the abbreviation of firmware upgrade Over the Air.

FOTA provides a way which allows device to update the core firmware over the air. Considering the specialty and variety of modern usage, SIMCom refines the whole FOTA procedure, customers can use ATC interface provided by SIM7000 series, and accomplish SIM7000 series Firmware upgrading according to their own condition.

SIMCom defines following upgrading process:

A   SIMCom supports delta firmware file.

B   SIM7000 gets the delta firmware file through http.

C   MCU requires SIM7000 to update by sending AT commands.

D   MCU read the update status by AT commands.

2　AT commands

This chapter describes AT commands related to FOTA.

2.1　AT+CFOTA　　FOTA Operation

AT+CFOTA FOTA Operation	
Write Command **AT+CFOTA=\<m ode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: \<err>**
	Parameters **\<mode>** 　　**1**　Format the data area to be written, it is mandatory for writing data 　　**0**　　Clean the flag
Read Command **AT+CFOTA?**	Response **+CFOTA:\<status>** **OK**
	Parameters **\<status>**　　**1**　　The module is updating. 　　　　　　**2**　　start to recovery modem 　　　　　　**3**　　fail in recovery modem 　　　　　　**4**　　start to recovery AP 　　　　　　**5**　　fail in recovery AP 　　　　　　**6**　　The module updates successfully 　　　　　　**7**　　The module updating fails 　　　　　　**8**　　Clean the flag

3 FOTA Method

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

3.1 SIMCom supports delta firmware file

When customer needs to upgrade the onsite SIM7000 series Firmware from Version A to Version B, they can send the upgrade requirement to SIMCom via their module provider. SIMCom will provide related delta firmware file according to the information of Version A and Version B provided by customer. The size of the delta firmware file depends on the difference of Version A and Version B.

3.2 The module gets the delta firmware file from IP network

Customers usually use MCU to connect with SIM7000 series, therefore customer's MCU needs to get the delta firmware file first. This procedure is diversified, it may be by GPRS，or other methods. If GPRS method is used, customers can consider using HTTP to download delta firmware file from the customer's server.

If MCU acquires delta firmware file by GPRS method, customer may start a session via SMS or other methods.

Here SIMCom provides an example to acquire delta firmware file by using SIM7000 series HTTP function:

Grammar	Description
AT+CNACT=1,"CMNET" OK	Open GPRS session.
AT+HTTPTOFS="http://112.74.93.163:12345/V1___V2/update.zip","/fota/update.zip" OK +HTTPTOFS: 200,109285	Open the HTTP get session.

3.3 MCU requires the module to update by sending AT commands

After writing the delta firmware file into SIM7000 series flash memory successfully, MCU should send instruction to module by AT command to start the update. Once getting the instruction, the module will automatically reset itself and then enter FOTA upgrading process. After upgrading finished, the module will restart again automatically.

Grammar	Description
AT+CFOTA=1 OK	Set the flag bit for FOTA update, and reset module automatically.
+CFOTA: "Start to update" +CFOTA: "Updating",0	The module enters into FOTA upgrading process, which will last several minutes.

……
+CFOTA: "Update successfully, please wait for reset"
Or
+CFOTA: "Update failed, please wait for reset"

3.4 MCU read the update status by AT commands

If upgrading process is finished, the module will restart again automatically. Customer can use AT command to inquire the update result.

Grammar	Description
AT+CFOTA? +CFOTA: 6 OK	Inquire the update result by command CFOTA. 6 means updated and succeeded; 7 means updated but failed.
AT+GMR Revision:1351B04SIM7000C OK	Inquire the firmware version by AT+GMR.

Appendix

A. Related Documents

SN	Document name	Remark
[1]	SIM7000 Series_AT Command Manual	

B. Terms and Abbreviations

Abbreviation	Description
FOTA	Firmware Over-the-Air

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