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Version History

Version	Chapter	Comments
V1.00	New Version	

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1. Introduction

1.1 Overview

This document gives the usage of SIM7600M22 MIFI functions. User can get useful information about the SIM7600M22 MIFI functions quickly through this document.
The MIFI functions are provided in AT command format, and they are designed for customers to design their MIFI applications easily. User can access these MIFI AT commands through UART/ USB interface which communicates with SIM7600CE-A/SIM7600CE-T/SIM7600E-H/SIM7600SA-H module.

1.2 Terms and Abbreviations

For the purposes of the present document, the following abbreviations apply:

- AT ATtention; the two-character abbreviation is used to start a command line to be sent from TE/DTE to TA/DCE
- SSID Service Set Identifier
- Broadcast

1.3 Note

MIFI uses the 6th APN (except CDMA/EVDO).

2. MIFI Related AT Commands

Below is the MIFI associated with AT commands. Related.

Command	Description
AT+CWMAP	Open/Close WIFI
AT+CWSSID	SSID setting
AT+CWBCAST	Broadcast setting
AT+CWAUTH	Authentication type, encrypt mode and password setting
AT+CWMOCH	80211 mode and channel setting
AT+CWISO	Client isolation setting
AT+CWDHCP	Get the current DHCP configuration
AT+CWNAT	NAT type setting
AT+CWCLICNT	Get client number connected to the WIFI

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AT+CWRSTD	Restore to default setting
AT+CWMAPCFG	WIFI configuration setting
AT+CWLANSRV	LAN SERVER setting
AT+CWLANMSG	Send message
AT+CWMACADDR	Get MAC address
AT+CWNETCNCT	Query the connection to the network
AT+CWSTAIP	Get STA mode IP address
AT+CWSTASCAN	Scan WIFI network
AT+CWSTACFG	STA mode configuration setting
AT+CWUSRINFO	Auth info of wifi data call setting

2.1 AT+CWMAP Open/Close WIFI

AT+CWMAP Open/Close WIFI	
Test Command **AT+CWMAP=?**	Response **+CWSSID: (0-1)** **OK**
	No parameter
Read Command **AT+CWMAP?**	Response **+CWMAP: <flag>** **OK**
	No parameter
Write Command **AT+CWMAP=<flag>**	Response **OK**
	Parameter: **<flag>** 0 Close 1 Open
Reference	Note

Examples

```
AT+CWMAP?
+CWMAP: 1
OK
```

```
AT+CWMAP=0
OK
```

2.2 AT+CWSSID SSID setting

AT+CWSSID SSID setting	
Read Command **AT+CWSSID?**	Response **+CWSSID: <ssid>** **OK**
	No parameter
Write Command **AT+CWSSID=<ssid>**	Response **OK**
	Parameter: **<ssid>** new ssid string. 1. The max length of <ssid> is 32 bytes when the <ssid> include only ASCII characters. 2. The max length of <ssid> is 20 bytes when <ssid> include only Chinese (One Chinese characters is 2 bytes, so the max Chinese count is 10). 3. The max length of <ssid> is 22 bytes when <ssid> include ASCII and Chinese characters (One Chinese character is 2 bytes, one ASCII character is 1 byte). The default value is SIM7600MIFI. When use AP-AP mode, the default value of the second AP is SIM7600MIFI_1. When use STA-AP mode, the default value is SIM7600MIFI_STA.
Reference	Note

Examples

```
AT+CWSSID?
+CWSSID: “7600MIFI”
OK
AT+CWSSID=”7600MIFI_1”
OK
```

2.3 AT+CWBCAST Broadcast setting

AT+CWBCAST Broadcast setting

Test Command **AT+CWBCAST=?**	Response **+CWBCAST: (0-1)** **OK**
	No parameter
Test Command **AT+CWBCAST?**	Response **+CWBCAST: <broadcast>** **OK**
	No parameter
Read Command **AT+CWBCAST=<broadcast>**	Response **OK**
	Parameter: **<broadcast>** 0 disabled 1 enabled
Reference	Note

Examples

```
AT+CWBCAST?
+CWBCAST: 1
OK
AT+CWBCAST=0
OK
```

2.4 AT+CWAUTH Authentication setting

AT+CWAUTH Authentication type, encrypt mode and password setting	
Read Command **AT+CWAUTH?**	Response **+CWAUTH:<auth>,<encrypt>[,<password>]** **OK**
	No parameter
Write Command **AT+CWAUTH=<auth>,<encrypt>[,<password>]**	Response **OK**
	Parameter **<auth>**

	0 open/share
	1 open
	2 share
	3 wpa
	4 wpa2
	5 wpa/wpa2
	<**encrypt**>
	0 null
	1 WEP
	2 TKIP
	3 AES
	4 TKIP-AES
	
	<password> password string, the length is 5 or betwwen 8 to 64. The char in the password is only allow the ASCII 's decimal code betwwen 32 to 126.
	
	The parameter need to meet the following conditions:
	1. If (auth = 0 or auth = 1) then (encrypt = 0 or encrypt = 1)
	2. If (auth =2) then (encrypt = 1)
	3. If (auth >=3) then (encrypt >=2)
	4. If(encrypt = 0) then (password is null)
	5. If(encrypt = 1) then
	{
	1) password can't be set null
	2) password format: (5 ASCII character) or (10 hexadecimal number) or(13 ASCII character) or(26 hexadecimal number)
	}
	6. if(encrypt >= 2) then
	{
	1) password can't be set null
	2) password format: (8~63 ASCII character or 64 hexadecimal number)
	}

Reference	Note

Examples

```
AT+CWAUTH?
+CWAUTH: 0,1, "11111"
OK
AT+CWAUTH?
+CWAUTH: 5,4, "12345678"
```

OK
Auth : open/share encrypt :null *AT+CWAUTH=0,0*
OK
Auth : open/share encrypt :WEP *AT+CWAUTH=0,1,"11111"*
OK
Auth : share encrypt :WEP (ASCII character password : 12345) *AT+CWAUTH=2,1,"12345"*
OK
Auth : share encrypt :WEP (sixteen hexadecimal number : password 12345) *AT+CWAUTH=2,1,"3132333435"*
OK
Auth : WPA/WPA2 encrypt :TIKP-AES *AT+CWAUTH=5,4,"abcd1234"*
OK

2.5 AT+CWMOCH 80211 mode and channel setting

AT+CWMOCH 80211 mode and channel setting	
Test Command **AT+CWMOCH?**	Response **+CWMOCH: <mode>,<channel>** **OK**
	No parameter
Read Command **AT+CWMOCH=<mode>,<channel>**	Response **OK**
	Parameter: < **mode** > 1 a/n 5G mode 2 b 2.4G mode 3 b/g 2.4G mode 4 b/g/n 2.4G mode 5 ac/n 5G mode < **channel**> 0 auto select 1~11 2.4Gmode channel number 149/153/157/161/165 5G mode channel number If <mode> is 1 (a/n)/5(ac/n), <channel> can be set 149/153/157/161/165 If <mode> is 2/3/4, <channel> range is 0~11

	If <mode> is 1/5, the client must be support 5G mode
Reference	Note

Examples

AT+CWMOCH?
+ CWMOCH: 4,0
OK
AT+ CWMOCH =3, 1
OK

2.6 AT+CWISO Client isolation setting

AT+CWISO Client isolation setting	
Test Command **AT+CWISO=?**	Response **+CWISO: (0-1)** **OK**
	No parameter
Test Command **AT+CWISO?**	Response **+CWISO: <isolation>** **OK**
	No parameter
Read Command **AT+CWISO=<isolation>**	Response **OK**
	Parameter: **<isolation>** 0 close 1 open
Reference	Note

Examples

AT+CWISO?
+CWISO: 1
OK
AT+CWISO=0
OK

2.7 AT+CWDHCP Get the current DHCP configuration

AT+CWDHCP Get the current DHCP configuration	
Test Command **AT+CWDHCP?**	Response **+CWDHCP:<host_ip>,<range_start_ip>,<range_end_ip>,<leasetime>** **OK**
	Parameter **< host_ip >** the AP IP **<range_start_ip>** the start IP of the IP range that assigned to the client **<range_end_ip>** the end IP of the IP range that assigned to the client **<leasetime>** the lease time
Reference	Note

Examples

```
AT+CWDHCP?
+CWDHCP: "192.168.225.1","192.168.225.20","192.168.225.60",12h
OK
```

2.8 AT+CWNAT NAT type setting

AT+CWNAT NAT type setting	
Test Command **AT+CWNAT=?**	Response **+CWNAT: (0-1)** **OK**
	No parameter
Test Command **AT+CWNAT?**	Response **+CWNAT: <type>** **OK**
	No parameter
Read Command **AT+CWNAT=<type>**	Response **OK**
	Parameter: **<type>** 0 Symmetric 1 Cone

Reference	Note

Examples

```
AT+CWNAT?
+CWNAT: 1
OK
AT+CWNATT=0
OK
```

2.9 AT+CWCLICNT Get client number connected to the WIFI

AT+CWCLICNT Get the client number connected to the WIFI	
Read Command **AT+CWCLICNT?**	Response **+CWCLICNT: <cnt>** **OK**
	Parameter **<cnt >** the connected client count, range is from 0 to 32.
Reference	Note: The largest number of client connection is 32.

Examples

```
AT+CWCLICNT?
+CWCLICNT: 1
OK
```

2.10 AT+CWRSTD Restore to default setting

AT+ CWRSTD Restore all MIFI setting to default	
Test Command **AT+CWRSTD**	Response **OK**
	No parameter The module will reboot after restore
Reference	Note

Examples

AT+CWRSTD

OK

2.11 AT+CWMAPCFG WIFI configuration setting

AT+CWMAPCFG WIFI mode, configuration AP ID setting	
Read Command **AT+CWMAPCFG?**	Response **+CWMAPCFG: <enablessid2_value>,<configselect_value>** **OK**
	Parameter **<enablessid2_value>** 0 AP mode 1 AP-AP mode 2 STA-AP mode **<configselect_value>** Current AP ID (0 or 1 or 2)
Write Command **AT+CWMAPCFG=<option>,<value>**	Response **OK**

	Parameter
	<option>
	”enablessid2” set WIFI mode
	”configselect” set the current AP ID
	<**value**>
	the value of the options.
	If (option=”enablessid2”)
	0 AP mode
	1 AP-AP mode
	2 STA-AP mode
	If (option=”configselect”)
	Current AP ID (0 or 1 or 2) to be set.
	When current AP ID is 0, the AT+CWSSID/AT+CWBCAST/AT+CWAUTH/AT+CWMOCH/AT+CWISO/AT+CWDHCP/AT+CWCLICNT/AT+CWMACADDR will modify the first AP’s settings;
	When current AP ID is 1, the AT+CWSSID/AT+CWBCAST/AT+CWAUTH/AT+CWMOCH/AT+CWISO/ AT+CWDHCP/AT+CWCLICNT/AT+CWMACADDR will modify the second AP’s settings;
	When current AP ID is 2, the

	AT+CWSSID/AT+CWBCAST/AT+CWAUTH/AT+CWMOCH/AT+CWISO/ AT+CWDHCP/AT+CWCLICNT/AT+CWMACADDR will modify the third AP's settings, the AT+CWSTAIP/AT+CWSTASCAN/AT+CWSTACFG Will modify the STA's settings.
Test Command **AT+CWMAPCFG=?**	Response **+CWMAPCFG: ("enablessid2","configselect"),(0-2)** **OK**
Reference	Note: 1. It can't set the configselect value to 1 when enablessid2 is 0. 2. Reset the module when change the enablessid2's value. 3. You should set the configselect value to 2 when enablessid2 is 2.

Examples

AT+CWMAPCFG=?
+CWMAPCFG: ("enablessid2","configselect"),(0-2)
OK
AT+CWMAPCFG?
+CWMAPCFG: 0,0
OK
Set enablessid2
AT+CWMAPCFG="enablessid2",1
OK
Set configselect
AT+CWMAPCFG="configselect",0
OK

2.12 AT+CWLANSRV LAN SERVER setting

AT+CWLANSRV	**LAN server setting**
Read Command **AT+CWLANSRV?**	Response **+CWLANSRV: <server_ip >,<server_port>** **OK**
	Parameter **<server_ip >** Default 192.168.225.1 **<server_port>** Default 5555

Write Command **AT+CWLANSRV=<value>**	Response **OK**
	Parameter **<value>** 0 close the server 1 open the server Note If module power off,the command will restore the default value.
Write Command **AT+CWLANSRV=0,<server_port>**	Response OK
	Parameter **<server_port>** Default 5555 The range of permitted values is 1024 to 65535. Note The command will close the server first.
Reference	Note

Examples

```
AT+CWLANSRV?
+CWLANSRV: 192.168.225.1,5555
OK
AT+CWLANSRV=1
OK
AT+CWLANSRV=0,44444
OK
```

2.13 AT+CWLANMSG Send message

Must open the lan server first(AT+CWLANSRV=1).

AT+CWLANMSG	**Send message**
Write Command **AT+CWLANMSG=<message>**	Response **OK**
	Parameter **<message>** Hexadecimal string.The max length of message is 512.

Received urc message **+CWLANMSG: <message><tail>**	Parameter **<message>** ASCII string. (1)The message must end with 0x0A from the client. (2)The max length of <message> is 1024,and ignore others. **<tail>** 0x0D0A0D0D0A Normal tail. 0x0D0D0A The message has 0x00.
Reference	Note

Examples

```
AT+CWLANSRV=1
OK
AT+CWLANMSG="31323434"
OK
+CWLANMSG: 1234\r\n\r\r\n
```

2.14 AT+CWMACADDR Get MAC address

AT+CWMACADDR Get MAC address	
Test Command **AT+CWMACADDR ?**	Response **[<number>,<mac_addr>** **[… …]]** **OK**
	Parameter **<number>** **0 host mac addr** **1 client mac addr** **… client mac addr** **<mac_addr>** **Device mac address**
Reference	Note

Examples

```
AT+CWMACADDR?
0,00:0A:F5:88:88:8F
1,74:23:44:8f:64:fd
```

```
OK
```

2.15 AT+CWNETCNCT Query the connection to the network

AT+CWNETCNCT	Query the connection to the network
Read Command **AT+CWNETCNCT?**	Response **+CWNETCNCT: <flag>** **OK**
	Parameter: **<flag>** 0 disconnect 1 connect
Reference	Note

Examples

```
AT+CWNETCNCT?
+CWNETCNCT: 1
OK
```

2.16 AT+CWSTAIP Get STA mode IP address

AT+CWSTAIP Get STA mode IP address	
Read Command **AT+CWSTAIP?**	Response **[+CWSTAIP: <ip address>]** **OK**
	Parameter **< ip address >** the station IP address.
Reference	Note

Examples

```
AT+CWSTAIP?
+CWSTAIP: 192.168.11.27
OK
```

2.17 AT+CWSTASCAN Scan WIFI network

AT+CWSTASCAN	Scan WIFI network
Read Command **AT+CWSTASCAN**	Response **[+CWSTASCAN:** **<bssid>,<ssid>** **[… …]]** **OK**
	Parameter **<bssid>** The MAC address of external wireless network. **<ssid>** The SSID name of external wireless network.
Reference	Note

Examples

```
AT+CWSTASCAN
+CWSTASCAN:
4c:e6:76:49:2a:48, simtest

OK
```

2.18 AT+CWSTACFG STA mode configuration setting

AT+CWSTACFG STA mode configuration setting	
Read Command **AT+CWSTACFG?**	Response **+CWSTACFG: <ssid>[,<security>,<proto>,<psk>]** **OK**
	No parameter
Write Command **AT+CWSTACFG=<ssid>[,<security>,<proto>,<psk>]**	Response **OK**
	Parameter **<ssid>** The SSID name of external wireless network. **<security>** Reserved value.

	<proto> Reserved value. **<psk>** The password of external wireless network.
Reference	Note: 1. The configselect value must set to 2; 2. The <security> and <proto> are reserved value which is in ort to compatible with previous versions. These 2 parameters can be entered NULL or any combination.

Examples

```
AT+CWSTACFG= "simtest",2,1,"1234567890"
OK
AT+CWSTACFG?
+CWSTACFG: "simtest",,,"1234567890"
OK
AT+CWSTACFG= "simtest",,,"1234567890"
OK
AT+CWSTACFG?
+CWSTACFG: "simtest",,,"1234567890"
OK
AT+CWSTACFG= "simtest",,,""
OK
AT+CWSTACFG?
+CWSTACFG: "simtest"
OK
AT+CWSTACFG= "simtest"
OK
AT+CWSTACFG?
+CWSTACFG: "simtest"
OK
```

2.19 AT+CWUSRINFO Auth info of wifi data call setting

The username and password are only for CDMA/EVDO network mode.

AT+CWUSRINFO	**Auth information of wifi data call setting**
Test Command **AT+CWUSRINFO=?**	Response **+CWUSRINFO: (1-127),(1-127)** **OK**

	No parameter
Read Command **AT+CWUSRINFO?**	Response **+CWUSRINFO: <usrname>,<password>** **OK**
	No parameter
Write Command **AT+CWUSRINFO=<usrname>,<password>**	Response **OK**
	Parameter: **<usrname>** username string. The length is from 1 to 127. **<password>** password string. The length is from 1 to 127.
Reference	Note: 1. It need to reset when set the username and password. 2. If not set the username and password, the default value is "ctnet@mycdma.cn" and "vnet.mobi".

Examples

```
AT+CWUSRINFO=?
+CWUSRINFO: (1-127),(1-127)
OK
AT+CWUSRINFO?
+CWUSRINFO: "ctnet@mycdma.cn","vnet.mobi"
OK
AT+CWUSRINFO=”username”,"pwd"
OK
```

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3. Coexistence with MIFI

3.1 PPP-DIALUP when MIFI is running

When MIFI is running on the SIM7600CE module, the PPP-dialup only works on another pdp context if the network supports(LTE and UMTS). In 1xEvDo mode, the PPP cannot work when the MIFI is working.

3.2 RMNET when MIFI is running

When MIFI is running on the SIM7600CE module, the rmnet-dialup only works on another pdp context if the network supports (LTE and UMTS). In 1xEvDo mode, the rmnet-dialup cannot work when the MIFI is working.

3.3 Embedded TCPIP when MIFI is running

When MIFI is running on the SIM7600CE module, the embedded tcpip at commands can work only if the ip filter is configured. If not , the route to internet can be disordered.

The example shows here:

AT+CIPFILTERSET=0,1
OK

AT+NETOPEN
OK

+NETOPEN:0

AT+CIPOPEN=0,”TCP”,”116.195.234.555”,9876
OK

+CIPOPEN:0,0

4. Process Introduction

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4.1 W58's Station

1) Configure WiFi mode to STA-AP mode
AT+CWMAPCFG= "enablessid2",2
2) Switch the current AP ID
AT+CWMAPCFG= "configselect",2
3) Scan external hotspot
AT+CWSTASCAN
4) Configure STA related parameters
AT+CWSTACFG= "sim", 2,1, "1234567890"
5) Querying STA's IP
AT+CWSTAIP?

4.2 LAN communication

1) Configure the server and open LAN server
AT+CWLANSRV=1
2) Using the client connection server in the LAN
3) Send message to client,and client can receive “1234”.
AT+CWLANMSG=”31323334”
4) Send message from client,and the module can receive this message.
+CWLANMSG: 12345\r\n\r\r\n

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