SIM300 Software Application Note V2.0

Version 2.0

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GSM 1/2

1. Baud rate notice

SIM300, SIM300C, SIM306, SIM300D, SIM508
SIM340, SIM340C, SIM340D, SIM548 baud rate is auto-bauding, AT+IPR=0 is default configuration, when module is shipped from SIMCom, module does not feedback any information.

Suggest you fix it:
AT+IPR=9600;&w as your request.
If you restart module, it will feedback as SIM100S32-E old module:
RDY
+CFUN: 1
etc

And you can configure module by some AT command, like AT, ATI, AT+CSQ, AT+CREG?, AT+CGATT?, etc.

And after you get CALL READY from SIM300, you can setup SMS or phone etc AT as your need.

2. How to call and answer a coming call?

Phone 010-65802113 call SIM300(13910000111), then you can get Ring from hyper terminal software, or call-ring from earphone, ATA to answer this coming call,
ATH to hang up it,

ATD01065802113; SIM300 dials 010-65802113,
Use AT+VTS="8,8,8" to dial external phone number 888.

3. How to display incoming calling number?

How to get SIM300's SIM card number?
AT+CLIP=1   // check dialed SIM card open this function
  OK
RING
+CLIP: "01065802113",129 // incoming call number01065802113
  OK
ATH

Get SIM card number:
AT+CPBS="ON"
OK
AT+CPBW=1,"139100001111"

OK
AT&W
OK
AT+CNUM
+CNUM: "","139100001111",129,7,4

4. How to start a time-counter when answering a call?
AT+COLP=1   // setup to count time when receive call
  OK
ATD01065802116;
   // awaiting, but not receive call, not start to open timer
OK   // answer this call, it start to count time
ATH

5. How to configure voice channel?
AT+CHFA=1   // change handset to earphone(Switched aux audio),
OK   // default is handset(main audio, 0)

AT+CHFA=0 // main audio

For aux audio channel(earphone) Echo noise suppression
AT+ECHO=20000,5,15,1   // normal
AT+ECHO=20500,4,15,1 // If some Echo exist, do as this line
AT+ECHO=19500,6,15,1 // If can't hear pear-side voice

For main audio channel(handset) Echo noise suppression
AT+ECHO=30000,5,10,0   // normal
AT+ECHO=30500,4,10,1 // If some Echo exist, do as this line
AT+ECHO=29500,6,10,1 // If can't hear pear-side voice

AT+CMIC?   //   Microphone volume
+CMIC:2,2
OK

AT+CRSL?   // Ring volume
  +CRSL: 100
  OK

AT+SIDET?   // Side volume
+SIDET: 4096
OK

6. How to send English text SMS to 13910000112?

AT+CMGF=1
OK
AT+CSCS="GSM"
OK
AT+CMGS="13910000112"
> Hello world   // then Ctrl Z at the same time
+CMGS: 158   // finished

7. How to send PDU mode Chinese text SMS?

AT+CMGF=0
OK
AT+CSCS="UCS2"
AT+CMGS=019   // 15+4
> 0011000D91683119000011f2000801044f60597d // Ctrl Z
  // 13910000112 您好
+CMGS: 159

8. How to send Chinese text SMS?

AT+CMGF=1
OK
AT+CSCS="UCS2"
OK
AT+CSMP=17,167,0,24
OK
AT+CMGS=
  "00310033003900310030003000300030003100310032"
> 67688559660e   // send 杨蕙明 to 13910000112
+CMGS: 160

9. How to read a SMS, delete a SMS?

AT+CMGF=1
OK
AT+CMGR=2
+CMGR:"REC UNREAD","+8613911000147",
,"07/03/01,11:20:28+32" test // content is test

AT+CMGD=2
OK
AT+CMGR=2
OK // means it is empty

10. How to check if pear-side get a sent SMS?

AT+CSMP=49,167,0,241
  // 49: 17 is default,
  // 241: if 24,25 for UCS2,
  // 241: if 240 pear-side can only see, can not save this SMS,
  // 241: if 241 pear-side can save it
AT+CNMI=2,1,2,1,0

AT+CMGF=1
OK
AT+CSCS="GSM"
OK
AT+CMGS="13910000112"
> Hello world // then Ctrl Z at the same time
+CMGS: 161   // finished
+CDS: ,36,"+8613911000147",145,"07/03/01,11:10:43+32","07
/03/01,11:10:43+32",0,2,1,2,1,0

11. Common AT command (including GSM, GPRS AT)

AT // at
OK

ATI
SIMCOM_Ltd
SIMCOM_SIM300
Revision: 1008B10SIM300S32_(SPANSION)SIMCOM_Ltd

AT+CSQ // How to check RF signal strength
+CSQ: 29,0
OK

AT+CREG?
+CREG: 0,1 // GSM network is OK
OK

AT+CGATT?
+CGATT: 1 // GPRS is active, 0: de-active
OK

AT+CIPSTATUS // check GPRS status
STATE: CONNECT OK

AT+CIPDPDP=1,10,3 // if antenna is turn off

OK
+PDP: DEACT // after about 3 minutes, GPRS is de-active

AT+CIPSHUT // Close GPRS

AT+CGATT=0 // Close GPRS

AT+CFUN=0,1 // Close GPRS

AT+CPOWD=1 // Close GPRS
NORMAL POWER DOWN,

AT+CPIN? // How to check SIM card
+CPIN: READY
RDY
+SCKS:0   // means: SIM card is not inserted

AT+GSN // IMEI number of SIM300 module
355117001512899
OK

12. How to power on and power off or reset SIM300?
Power on:
   PWRKEY pin is Low for 3 seconds, then goes to high // power on
Power off:
PWRKEY pin is low for 0.8 seconds, then goes to high for at least 6S
Reset:
AT+CPOWD=1 // then SIM300 is off, then let PWRKEY low 3S to on.

GPRS 2/2

13. How to send TCP pack to IP?
AT+CREG?
+CREG: 0,1
OK
AT+CGATT?
+CGATT: 1
OK
AT+CIPSTART="TCP","211.136.42.12","2020"
OK
CONNECT OK
AT+CIPSEND
> test only // Ctrl Z

SEND OK
Then Server.exe(IP) can get test only data

14. How to send data by APN?
AT+CSTT="CMNET","",""
  // or other APN name, user name, password
OK
AT+CIICR
OK
AT+CIFSR
129.1.2.45 // SIM300 gets an IP address

AT+CIPSTART="TCP","211.136.42.12","2020"
OK
CONNECT OK
AT+CIPSEND
> test APN // Ctrl Z
SEND OK
Then Server.exe(IP) can get test APN data

15. How to send data in 6 kinds of way?
AT+CIPSEND
> test not fixed data

AT+CIPSEND=15
> test fixed data

AT+CIPHEAD=1
+IPD4:head // module will get data external head data from server

AT+CIPATS=5
AT+CIPSEND
> send data after 5 seconds

AT+CIPSPRT=0
AT+CIPSEND
No Enter and not > this is data to be sent
AT+CIPSRIP=1
AT+CIPSEND
> SIM300 get server's IP

16. How to use DNS?
AT+CDNSCFG="211.136.17.107" // this is Beijing DNS server

OK
AT+CDNSORIP=1
OK
AT+CIPSTART="TCP","www.263.net","80"
OK
CONNECT OK
AT+CIPSEND
> data from DNS
SEND OK

AT+CDNSGIP="www.sina.com.cn"
218.201.44.9
221.130.6.84

218.206.86.88

17. How to dial GPRS?
AT+CGDCONT=1,"IP","cmnet"
OK
ATD*99***1#
CONNECT
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NO CARRIER

18. How to use transparent mode for large GPRS data?
AT+CREG?
+CREG: 0,1
OK
AT+CGATT?
+CGATT: 1
OK
AT+CIPMODE=1
OK

```
AT+CIPCCFG=5,2,256,1
 // 5, re-send times
 // 2, 2*200mS delay
 // 256, 256kbytes each time, buffer size is about 15kbytes
 // 1, +++ can quit from data mode to AT command mode
AT&D1 // DTR low can can quit to AT command
OK
AT+CIPSTART="TCP","211.136.42.12","2020"
OK
CONNECT // enter data mode
Data to be sent by transparent data mode
+++ // enter command mode, AT is active
ATO // enter from AT command mode to data mode
AT+CIPSHUT
SHUT OK
```

19. How to use CSD?

```
1391 000 0111 dial, on module 1,
1391 000 0112 dialed, on module 2,
```

For two SIM cards communication
```
Module 1
AT+CSNS=4
ATD13910000112   // no need use ;
CONNECT 9600

CSD data transmit and receive

Module 2
AT+CSNS=4
RING
ATA
CONNECT 9600

CSD data transmit and receive
```

For phone line dial, and 1391 000 0112 dialed, module 2
```
Phone line
ATD13910000112
CONNECT 9600
CSD data transmit and receive

Module 2
```

AT+CSNS=4
RING
ATA
CONNECT 9600

CSD data transferring
Note: if CSD dial, need SIM card open this business,
If CSD dialed, need SIM card this business support.

20. SIM card is Server, send TCP pack two ways
(1). TCP, way 1/2
for server
  using computer hyper terminal

  AT+CIPCSGP=1,"CMNET"
  OK
  AT+CLPORT="TCP","2020"
  OK
  AT+CIPSERVER
  OK
  SERVER OK
  AT+CIPCCON=2
  OK
  AT+CIFSR
  10.191.255.199
  REMOTE IP: 10.191.255.207:2020
  AT+CIPSEND
  > test data from server
    //but server do not have SEND OK response

for client
  using computer hyper terminal
  AT+CSQ
  +CSQ: 14,0
  OK
  AT+CGATT?
  +CGATT: 1
  OK
  AT+CIPSTART="tcp","10.191.253.182","2020"
  OK
  CONNECT OK
  AT+CIFSR // no need use this at
  10.191.255.207

AT+CIPSEND
> test data from client
SEND OK
test data from server // got data from server

(2). TCP, way 2/2
for server
    using GPRS PCMCIA card, dial GPRS to internet,
    getting IP: 10.191.255.199, 2020
    using SIMCom server software, set its IP and port

for client
    using computer hyper terminal
    AT+CIPSTART="TCP","10.191.255.199","2020"
    OK
    CONNECT OK
    AT+CIPSEND
    > Test data from client
    SEND OK

21. How to let SIM300 go to sleep mode?
    AT+CSCLK=1,
    Then, MCU IO outputs high to DTR of SIM300, it goes to sleep.

22. How to wake up SIM300?
    MCU IO output low for 20ms to DTR
    OR Receive a call
    OR Receive a SMS
    OR RTC alarm expired

23. How to dial GPRS to access internet by computer?
    Add a new computer modem: Start, Setup, Control panel, Call and
        modem selection, modem, add, not detecting modem, choose
        from list, next, 19200bps modem, next, COM1, next, finish
    Setup this modem: Property, Normal: 115200,
        Advanced: AT+CDGCONT=1,"IP","cmnet" or other APN,
    Add new connect: Control panel, Networks & Dial connect, dial to
        special networks, next,
        select modem: standard 19200bps modem(COM1), next,
        *99#, not select use dialed rules, next,
        select all user use this connect, next,
        name: GPRS, finish
    SIM300 baud rate should be 115200

Run this connect, user name and password are empty.
　Property: networks, TCP/IP, property, DNS: auto, sure,
　Normal: configuration: 115200, sure, dial

Reference
　1. SIM300_HD_V3.05.pdf
　2. SIM300_ATC_V1.06.pdf
　3. TCPIP Application Note 1.01.pdf
　4. SMS APP V01.01.pdf