



# **SIM7000 Series\_NTP\_Application Note\_V1.00**



<b>Document Title</b>	SIM7000 Series_NTP_Application Note
<b>Version</b>	1.00
<b>Date</b>	2017-12-18
<b>Status</b>	Release
<b>Document Control ID</b>	SIM7000 Series_NTP_Application Note_V1.00

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## Version History

Date	Version	What is new	Author
2017-12-18	1.00	New version	Xiping.li

## Scope

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

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## 1 NTP Function

Network Time Protocol (NTP) is used to make computer time synchronization protocol, which allows the computer to its server or clock source (such as quartz, GPS, etc.) do synchronization, it can provide high-precision time correction (LAN with standard deviation of less than 1 millisecond between, WAN tens of milliseconds), and can be accessed by way of confirmation encryption protocol to prevent malicious attacks

### 1.1 SNTP Description

SNTP: Simple Network Time Protocol.

SNTPV4 adapted from the NTP is mainly used to synchronize computer clocks in the Internet. SNTP for NTP function without full use of the situation. Compare previous NTP and SNTP versions, SNTPV4 introduction does not change the original NTP specification and implementation process, it is a further improvement of NTP support in a simple, stateless remote procedure calls to perform accurate and reliable mode of operation, which is similar to in the UDP / TIME protocol.

Currently SIM7000 series modules only support SNTP function module.

### 1.2 NTPAT Command

There are a set of AT commands to support the NTP operation.

## 2 AT Command

SIM7000 series modules provide NTP AT command as follows:

Command	Description
AT+CNTPCID	Set GPRS bearer profile's ID
AT+CNTP	Synthesize network time

For more detail introduction, please refer to SIM7000 Series\_AT Command Manual.

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### 3 Expamples

There are some examples to explain how to use these commands.

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

#### 3.1 Netwrok Time Synchronize and output Netwrok Time to AT port

Grammar	Description
AT+SAPBR=3,1, "APN","CMNET" OK	Configure bearer profile 1
AT+SAPBR=1,1 OK	To open a GPRS context.
AT+CNTP="202.120.2.101",32 OK	Set NTP service url and local time zone,cid and output time to AT port <i>Note: Here's 32 actually represent 32/4=8, which means that eight East region, Beijing.</i>
AT+CNTP OK	Start Sync Network Time
+CNTP: 1,"2017/11/17,09:25:34"	Synchronize time successfully and output to AT port.

### 3.2 Network Time Synchronize

Grammar	Description
AT+SAPBR=3,1, "APN","CMNET" OK	Configure bearer profile 1
AT+SAPBR=1,1 OK	To open a GPRS context.
AT+CNTPCID=1 OK	Set NTP Use bear profile 1
AT+CNTP="202.120.2.101",32,1,0 OK	Set NTP service url and local time zone <i>Note: Here's 32 actually represent 32/4=8, which means that eight East region, Beijing.</i>
AT+CNTP OK	Start Sync Network Time
+CNTP: 1	Synchronize time successfully.
AT+CCLK? +CCLK: "13/09/11,20:23:25+32" OK	Query local time Here's timezone may different with that in CNTP setting.

### 3.3 Output Network Time to AT port

Grammar	Description
AT+SAPBR=3,1, "APN","CMNET" OK	Configure bearer profile 1
AT+SAPBR=1,1 OK	To open a GPRS context.
AT+CNTP="202.120.2.101",32,1,1 OK	Set NTP service url and local time zone,cid and output time to AT port <i>Note: Here's 32 actually represent 32/4=8, which means that eight East region, Beijing.</i>
AT+CNTP OK	
+CNTP: 1,"2017/11/17,09:25:34"	Output network time to AT port.

## Appendix

### A. Refated Documents

SN	Document name	Remark
[1]	SIM7000 Series AT Command Manual	

### B. Terms and Abbreviations

Abbreviation	Description
EVB	Evaluation Board
NTP	Network Time Protocol
TE	Terminal Equipment
TA	Terminal Adapter
DTE	Data Terminal Equipment or plainly “the application” which is running on an embedded system
DCE	Data Communication Equipment or facsimile DCE(FAX modem, FAX board)
ME	Mobile Equipment
MS	Mobile Station

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